July 1959

MANAGEMENT *and* BUSINESS AUTOMATION

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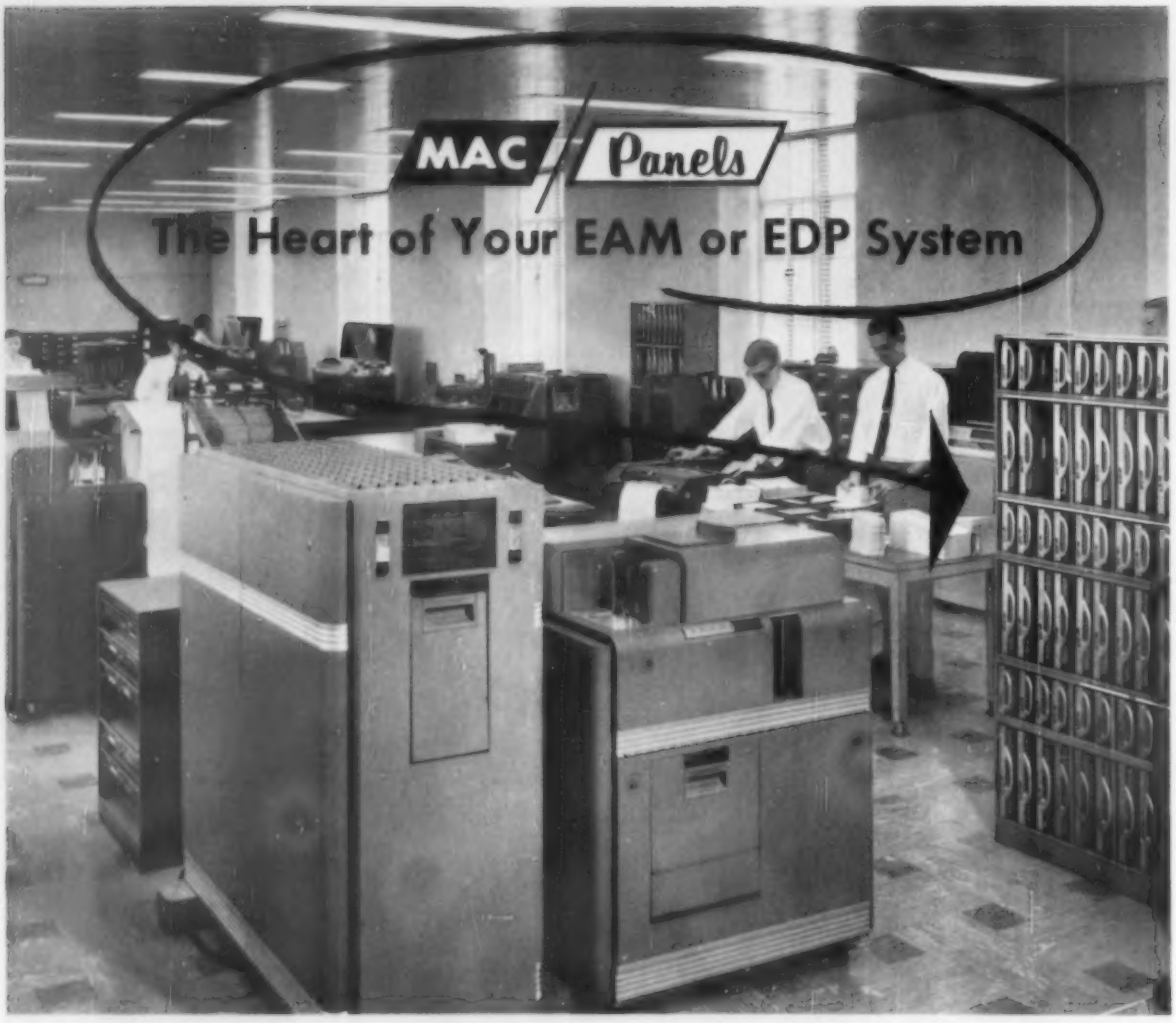

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MANAGEMENT *and* BUSINESS AUTOMATION

July, 1959
Vol. 2, No. 1

Reporting to management on new ideas, developments, applications, results, and the human impact of office automation in all areas of commerce, industry and government.

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MANAGEMENT and BUSINESS AUTOMATION is published monthly and © copyrighted 1959 by The Office Appliance Co., 600 W. Jackson Boulevard, Chicago 6, Illinois. Accepted as controlled circulation publication at Chicago and Mt. Morris, Illinois.

Subscription Rates: United States, one year, $5; two years, $8. Canada, Pan American and foreign, one year, $12; two years, $20. Single copies: U.S.—75c; all other countries—$1.50.

Change of Address: Send new and old addresses (preferably with an MBA label), including postal zone numbers, to Circulation Department, MANAGEMENT and BUSINESS AUTOMATION.
Receipt of changes by the 10th of the month will assure correct addressing of next issue.

Postmaster: Send notices to MANAGEMENT and BUSINESS AUTOMATION, 600 W. Jackson Boulevard, Chicago 6, Illinois.

Letters

Dear Sir:

Please send detailed information re: Machine Accounting Salaries Survey for the Los Angeles and San Francisco areas.

We have read, with interest, your fine articles and are looking forward to the Computer Salaries Survey in the near future.

How about a "What's in the Wind" series? What does I.B.M., Rem. Rand, Elecom, etc., have on the drawing board for 1960-70?

J. E. Schaefer
Manager, Machine Acct.
The London Group
Los Angeles

Dear Sir:

Do you have reprints of the article entitled "James Hoffa Eyes the Office Worker" which appeared in the Preview edition of MANAGEMENT and BUSINESS AUTOMATION?

We are interested in obtaining 100 copies of this very fine article to distribute to our management people in a joint conference to be held later this year.

Paul L. Mitzner
Vice President, personnel
State Farm Insurance Co.
Bloomington, Ill.

Dear Sir:

I have observed a small but disturbing error in the article by Fortune P. Ryan on page 48 of your issue for May.

He mentions, in part, "and *all* of the office workers of Western Electric are unionized." This is not so. *Some* Western Electric office workers are unionized. One might also say, a minute number.

C. L. Stong
Information Manager
Western Electric Co.
New York City

Dear Sir:

I will appreciate receiving a copy of the detailed report for the city of St. Louis which was included in "A Survey of Machine Accounting Salaries" in the June issue.

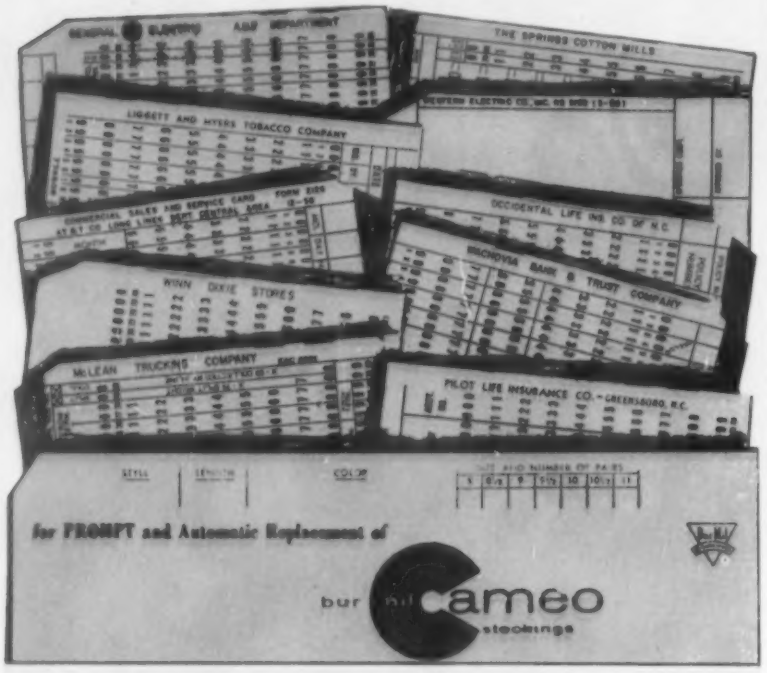
The survey, in which to my knowledge we did not participate, should be helpful in our salary administration program.

W. G. Winters
Manager, Data Processing
Anheuser-Busch, Inc.
St. Louis

Dear Sir:

"A Case of Missing Management" in your June issue highlights the need for sound organization and effective management. With so much emphasis placed on computers and electronic systems approaches, I feel that we have been somewhat remiss in failing to stress the rudimentary fundamentals necessary to effect intelligent management.

John L. McCarthy
Manager, Tabulating
Wyman Gordon Co.
Worcester, Mass.



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from the Publisher's Desk

THE many job titles represented on MBA's circulation list provide a significant commentary on the fluid status of business automation and data processing at the moment.

Actually more than 350 different titles are included in our family of readers. The men and women who hold these titles represent the management group responsible for determining internal procedures and for implementing these procedures through the selection and application of automation equipment and supplies.

We know that a great deal of confusion exists in management circles as to whether responsibility for company-wide systems and data processing should be placed with existing positions or with newly-created positions. This confusion is the reason that so many titles are being used to identify relatively few executive job functions.

Already there is evidence of some standardization of titles taking place. Notable are the positions of Vice President of Administration, Vice President of Operations, Director of Data Processing, and Director, Methods and Procedures. This is a healthy sign that the "total systems" concept is beginning to take hold.

It remains the task of our editors to keep you abreast of important developments regarding organizational placement of business automation and data processing responsibilities. You will see more of this in future issues.

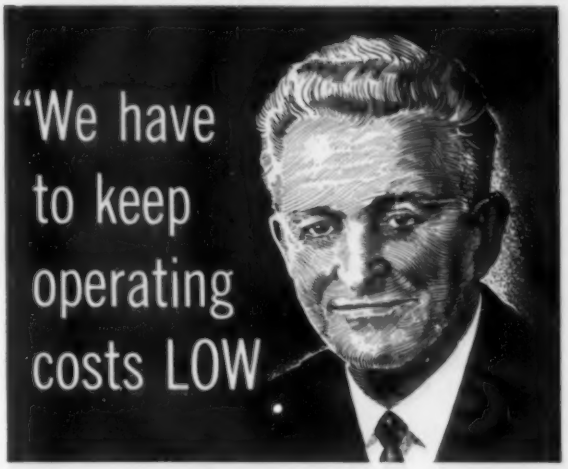
☆

For many months our editors and a number of field correspondents have been gathering material for a special issue of MBA devoted to automation in business communications. The culmination of this sizeable task will appear next month.

Covering direct wire, closed-circuit TV, micro-wave relays, 2-way voice radio, dictation and intercom systems, and various other communication methods, the August issue will focus attention on what is probably the weakest link in management control today.

Charles W. Gilbert

W. E. Thompson, Office Manager, Group Hospitalization, Inc., Washington, D. C., says



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An MBA News Feature

Computer 'Clerks' Help to Control Air Traffic

Data on flight plans is typed on Synchro Tape-typewriters and punched tape is produced for conversion to cards which are input medium for the computer.

A file computer plays an important role in relieving a major problem at the "world's busiest airport."

SWIFT, efficient "clerks" are now on the job at Idlewild International Airport in New York and at the Washington, D.C. airport, helping air traffic controllers with the imposing task of guiding as many as 3,000 aircraft in and out of the fields each day.

The "clerks" are Univac file computers, programmed to ease the paperwork burden which plagues the human controllers of the Federal Aviation Agency as they go about their daily job of keeping tabs on scores of take-off and arrival times, altitudes and speeds of incoming planes, types of aircraft approaching, changing weather conditions and flight progress.

The first use of the file computer, installed six months ago at Idlewild and in April in Washington, is to receive and store flight plans as they are relayed from departure points, compute estimated times the planes are to fly over fixed "check" points enroute to their destination, and assemble and print "progress strips" for the use of the human traffic controllers.

These strips contain an identification number, type of plane, speed, expected time of arrival over the point, altitude, and complete route to be flown. They become an invaluable aid to the human controllers who are responsible for the safety of the plane as it comes into the field.

As many as six or seven check points along the route (where pilots radio in their position) means at least that many calculations for each incoming flight. The computers take over this work with an accuracy and speed previously unobtainable.

Computer control of the sky

The paperwork involved in estimating the speed and air space requirements of the new jet flights demanded the use of electronic computer techniques to help insure efficient air traffic control. It takes 1,200 square miles of sky, 2,000 feet deep (an area nearly the size of the state of Rhode Island) to give a 600-mile-per-hour jet plane the reserved air space it requires for a routine instrument flight rule operation.

With the necessary data calculations being done

The Flight Control Room of Idlewild International Airport, heart of the air traffic control unit responsible for incoming and outgoing planes. Every decision here must be the right one to insure the safety of the aircraft.

Output data from the computer is in the form of "Flight progress strips" giving important calculations for incoming planes.

for them, the controllers can concentrate on their primary task—tracking flights and radioing new instructions to pilots in case conflicts develop.

By July it is expected that the New York and Washington computer will be connected with each other. This will permit them to "talk" directly in code, eliminating the need for human operators to transmit information.

By late summer additional computers will be installed in Pittsburgh, Cleveland and Boston. It is estimated that within five or six years national coverage will be in effect.

At the present time, the computers have relieved the traffic controllers of approximately 20 percent of their paperwork burden. It is expected that this will be increased to 50 percent in the near future and 100 percent when the national network is integrated.

"Total system" for future

Someday the system will transmit flight plan information to all F.A.A. traffic control centers, to control towers, to Air Defense Command operations and to aircraft operators. It will be used to determine overload conditions at bottlenecks in the system, such as at terminals, and it will compare flight plans to detect conflicts and read out these conflicts to the controller. The computers will also determine optimum control solutions and receive new position data and update flight plan estimates automatically. ■

Carte Blanche— The Automated Credit Card

By Arnold E. Keller

BEHIND the scene — and success — of Carte Blanche, the Hilton Hotel's worldwide, all-purpose credit card system, lies a modern machine accounting installation and a complete program of business automation.

So efficient is the operation, even in its initial stage, that it was necessary to include notices in with the first statements to customers apologizing for the promptness of billing and assuring them that no harrassment was intended.

To credit card users, however, prompt and correct billing is an innovation, and a welcome one. Equal enthusiasm for Carte Blanche comes from the "associates"—the establishments that honor the cards. For them, the combined features of a reduced service fee (as low as 4 percent for restaurants) and immediate reimbursement for charges at their local bank, offers a big advantage over competitive card plans.

As Carte Blanche zooms toward its two and one-half million membership goal, it becomes apparent that young Barron Hilton's "planned automation" program has hit the payoff area. The plan virtually eliminates clerical delays and errors that plague manual systems, and the speed and accuracy of processing charges makes possible the 4 percent service fee as compared with an average of 7 percent as charged by other plans.

A basic factor in the automation system is the embossed, plastic credit card issued to each member. This contains the member's name and ad-

Charge amounts are key-punched into charge ticket in the first phase of the Carte Blanche automation system. Batch totals are zero-balanced on IBM Card Proof machines, verifying accuracy of amount punching.

Barron Hilton, who directs the fortunes of the Hilton Credit Corp., expects Carte Blanche to be the number one credit card plan in the world.

dress, a Hilton-assigned account number and an expiration date. In addition to identifying the member to the associates, it is used to transfer the identification to the charge ticket.

This is done with the use of a miniature mechanical imprinter (given to each associate) which automatically copies the embossed information from the card to the ticket. The imprinters, designed especially for Hilton by Farrington Mfg. Co., are supplied as a part of the plan, and their use is mandatory. They have eliminated one of the biggest headaches of many credit card operations — incorrect or illegible customer identification.

Cash in the bank

The charge ticket is a two part form. One part becomes the customer's record and the other part, an 80-column IBM card, flows through the system to be eventually returned to the member along with a statement of charges.

The associate gathers together the Hilton charges each day, totals the gross amount and then deducts the service fee (which ranges from 4 to 7 percent depending upon the type of retail business served). The assembled charges are then placed in a "draft" envelope which has a form printed on the outside for entering both gross and service amounts.

The associate's bank honors this draft against the Hilton Credit Corp. and credits the associate's account with the net amount of the deposit. The bank forwards each day's accumulation of drafts to the Hilton Carte Blanche headquarters in Los Angeles.

To prevent any delay on the part of the associate in depositing charge tickets, Hilton will accept no responsibility for charges deposited more than three days after a transaction. This keeps account information on an up-to-date schedule.

At the Carte Blanche offices, the bank draft envelopes and contents are again totaled to verify the gross and discount sums before feeding the charges into the automatic system. At this point the daily dollar controls are also established, controls that aid in keeping the giant accounts receivable records in balance.

The charges are grouped into batches of around 300 each, with control totals of gross amount

Statements are prepared on a 403 printer with special two-up billfeed attachment. Cycle billing allows for constant work flow through the machine room.

covering each batch, and sent to the key punch section. The amount is punched into the charge cards on IBM Card Proof punches which provide a printed tape and total of charges as a byproduct of the punching operation. A summary card, containing the batch total, is fed into the punch. As individual charges are punched, they subtract from the control total. Anything other than a zero balance at the end of a batch indicates an error in punching.

Lost, strayed or stolen

The next step is to key punch the customer's account number. This is a 10-digit number which contains various codes vital to the automated system—in addition to providing customer identification. The last digit of the code is a "check" digit, a figure arrived at by a mathematical formula which involves the addition and multiplication of certain digits of the account number. This same formula is repeated during the key punching of the account number, and any error in punching will be automatically detected by a comparison of check digits.

Mechanical limitations of the card proof punch make it necessary to perform this second punching operation. However, the systems group at Carte Blanche are now experimenting with a Monroe machine, intercoupled with a standard key punch, which will combine the punching, proofing and taping operations into one.

From the key punch department, the charge cards move through a series of machine operations leading to ultimate billing. They are first processed through an IBM 101 sorter, which automatically selects and signals any charge amounts deemed unusual or excessive. These charges are immediately referred to the credit department for investigation or approval.

The purpose of this spot-check is to get an immediate trace on any person using a stolen credit card. According to H. Alexander MacLennan, vice president of Hilton Credit Corp., the system proved its worth in the first few weeks of operation. Several gentlemen using stolen cards were apprehended before they could get any large-scale "giveaway" program underway.

Following this fast credit check, the charge cards are accumulated for customer billing. Carte

Statement and charges are microfilmed on high-speed Recordak equipment, giving credit department a complete record of all transactions if such is needed.

Blanche uses a cyclical system of billing. The customers are separated into 100 cycles with a certain number of cycles being billed each day. Each cycle has its own control totals and is processed separately. All cycles are billed once a month. The cycle grouping is determined by several digits of the account number. Customers are assigned to cycles in a manner designed to maintain an even daily workflow as well as a constant geographic distribution of billings.

Key item in the Carte Blanche billing operation is the customer's master record card. This card contains a summary of the current status of the customer's account — information necessary to print the monthly statement—as well as a dollar summary of the customer's year-to-date charges. Built into the 80-column card is a series of codes that allow for automatic credit screening and action.

Credit by computer

These credit codes are one of the remarkable automation innovations of the Carte Blanche system. By applying a special formula to the information contained on the member's application, a code is obtained that governs the dollar credit limit to be extended. Another code measures a member's liability in regard to current and overdue charges.

These codes provide a means for establishing a

Continued on Page 31

RCA President John L. Burns, seated at the computer console, explains the function of a memory plane from the 501 system to Howard C. Petersen, left, president of Fidelity-Philadelphia, and Stewart M. Walker, senior vice president.

Fidelity's Move to Electronic Banking

John A. Cost, vice president of data processing at Fidelity-Philadelphia Trust Co., describes a step-by-step program for automation of operations.

TWO and one-half years of investigation, analysis and planning was deemed necessary before Fidelity-Philadelphia Trust Company was ready to enter the first phase of its long-range program for automation of operations at its 25 offices.

Reflecting the over-all conservative approach of a firm such as ours, we divided this program into three phases spanning an estimated three to five years. Each phase is geared to the most efficient utilization of electronic banking to meet our special needs.

The signing of a lease agreement for an RCA 501 electronic data processing system early this year sent the first phase into action.

But, before this step or any similar action could be taken, we had to establish a basic program to study the feasibility of an EDP system to meet our needs. This decision, in the long run, made possible an extremely moderate investment in personnel and facilities, and an unusually rapid cycle between the signing of the lease agreement and the beginning of the operations.

Pivotal in the planning was an area of most urgent need for automation: our large and growing check account bookkeeping activity. It appeared that conversion of this large-volume operation to EDP could provide an immediately self-liquidating basis for our automation program while requiring only about half of one shift each day. Remaining system time, we decided, would offer a potential increment through the extension

All operating controls for the computer are in this single panel of the console. In the forefront, from the left, is the high-speed printer, the monitor-printer and paper-tape punch, console, and paper tape reader.

of computer control to other banking functions.

Fidelity's automation program, then, was clearly originated to enable the bank to handle its sharply increasing volume of work without impairing its high standards of service. Management's interest in EDP crystallized several years ago through the catalyst of an enormous expansion—from two center city offices in 1951 to 25 offices today.

The mass movement of people, commerce and industry into the suburbs which were served by the bank's new offices caused a chain reaction. Many of these suburban centers developed so intensively that they became the centers of newer suburbs.

The system best suited

Fidelity's geographic expansion was accompanied by an equally intensive growth within the banking industry in general. This trend is expected to continue on the basis of the growth of population alone. Already a daily average of 90,000 checks are drawn on Fidelity and presented to it for payment.

Observing this situation, Howard C. Petersen, Fidelity's president, stated: "This year Americans will write—and the banks will have to handle—11 billion checks, twice the number written 12 years ago. This immense volume is expected to double itself over the next 12 years.

"Our projection of our own work load shows an even sharper rate of increase. A major, long-range program, centered on a computer, seems to us the only way in which this anticipated volume can be accommodated with a maximum of accuracy, promptness and economy."

In substance, these words were the recommendations which management took to the board of directors in 1956 when the problem was analyzed. The result was an authorization to develop an automation program.

A feasibility study was the first move on the agenda. It was necessary to determine what an EDP system could do to meet the bank's special needs—and it was equally necessary to determine what system best suited the company.

These responsibilities were assigned to a newly established electronic research and development group. The group included myself and two systems and methods men within our organization. *(At the time Mr. Cost was an assistant vice president of Fidelity.)*

Our feasibility studies took two and one-half years. We first set our ground rules. EDP systems by all manufacturers actually producing equipment were studied. Unnecessary extensive travel —and expense—were avoided. However, before making a decision as to our recommendations, we carefully investigated the whole field, attending schools and seminars sponsored by all the leading equipment manufacturers. Finally, we put all of the information together to make up our own minds as to our specific needs since we were closest to the problems to be resolved. We feel the two and one-half years were well spent!

While our study was in progress, RCA an-

Author John A. Cost now heads the data processing division at Fidelity.

nounced its fully-transistorized 501 system. Our group looked into the equipment and were impressed by its flexibility. It appeared reasonable that the system could perform general accounting, stock transfer and check handling economically and reliably at high speeds.

RCA's analysts worked with our group and showed us how their proposed system would fit our needs. We learned that the system could be tailored to fit our expansion without an extensive investment for future growth. The outcome was our recommendation that the 501 system be adopted by Fidelity. This was accepted by management and the board of directors.

A three-phase program

Included in our lease agreement were such services as training, analysis and programming guidance, program testing, consultation on site preparation, equipment service and maintenance, service routines and automatic programming. In addition, RCA made available to us computer time on a daily basis at one of its Service Centers in Camden, N. J., so that we could begin actually processing of our Special Checking Accounts this summer.

By going into operation on special accounts some five or six months before our system's installation early in 1960, we will be gaining valuable experience as well as reducing by half the cycle for the initial application in our major problem area, demand deposit bookkeeping.

At this point let me describe the 501 system decided upon for our initial needs. It includes a computer, along with its associated program control, operating console, power supply and monitor printer; a single unit high-speed storage with a capacity of 16,000 alphanumeric characters; a 1,000-character-per-second paper tape reader; a 600-line-per-minute high-speed printer for output of hard-copy forms with up to 120 characters per line, and eight tape stations, each with a read-write capacity of over 33,000 characters per second.

Other units are available if we need them for a substantially larger volume. These include high-speed random access files and punched card and paper tape input and output devices.

For the present, however, the above mentioned equipment satisfies our need. The system conforms to our objective of developing the electronic data processing program step-by-step, one project at a time. For the first project, demand deposit accounting, we could automate in three phases. This made possible important savings in equipment rental and maximum effectiveness for a small EDP team.

In the first phase, punched paper tape input will be used. Our add punch operators will create the tapes while proving batches of checks from the clearing house and deposits and checks from our own proof operation. Tape punching will also provide a permanent record of transactions and an accuracy check of the proved batches.

Ready for MICR

In the second phase, further savings will be realized through magnetic ink imprinting of source documents by the bank. We are already at work developing the necessary changes in check and other source document format to conform with American Banking Association standards for magnetic ink character recognition. (MANAGEMENT and BUSINESS AUTOMATION, *March issue.*)

Direct reading of the magnetic ink characters from source documents for coded input into our EDP system will represent another significant advance in the automation of demand deposit accounting. Our studies of magnetic ink imprinting have led us to believe that piecemeal applications will not be feasible nor substantial savings realized until we could have at least 90 percent of our source documents available for this type of processing.

In the third phase of our program, a fully automated input into our EDP system would be possible—when all banks will be using magnetic ink proving and a "common language" coding. Maximum savings will result when the data input is comprised of encoded documents pre-qualified

by other banks, and our own encoded, proved-out documents. This is an objective to which all banks with EDP systems are looking forward.

The program, as conceived, calls for an orderly conversion of bookkeeping machine operations to EDP. The first phase allows for thorough education of bank personnel and our policy on the conversion has been based on minimal job dislocation. Management decided early that there would be no lay-offs because of EDP. Though the bank's major bookkeeping activity would be transferred from our very large bookkeeping and transit department, certain activities will remain. Excess personnel will be transferred to a pool until normal attrition through turnover balances personnel and requirements.

Through this three-phase program we are converting our large volume applications to EDP over a period of three to five years from the establishment of our electronic data processing division.

Looking ahead, we foresee a cycle of a year to a year and one-half for completion of the demand deposit application. In subsequent years, our program will extend to personal loan accounting, trust accounting, commercial and mortgage loan accounting, savings accounting, and new areas of customer service which may be introduced. In short, we planned a program of progressive automation.

Built for expansion

The importance of the "building block" expansibility of our system has been graphically demonstrated in our program. Since the manufacturer's initial analysis of Fidelity's needs, our demand deposit accounting activity has increased approximately 12 percent. Still, only minutes of system time are affected. When work load increases to tax the system's capacity, additional components can be added.

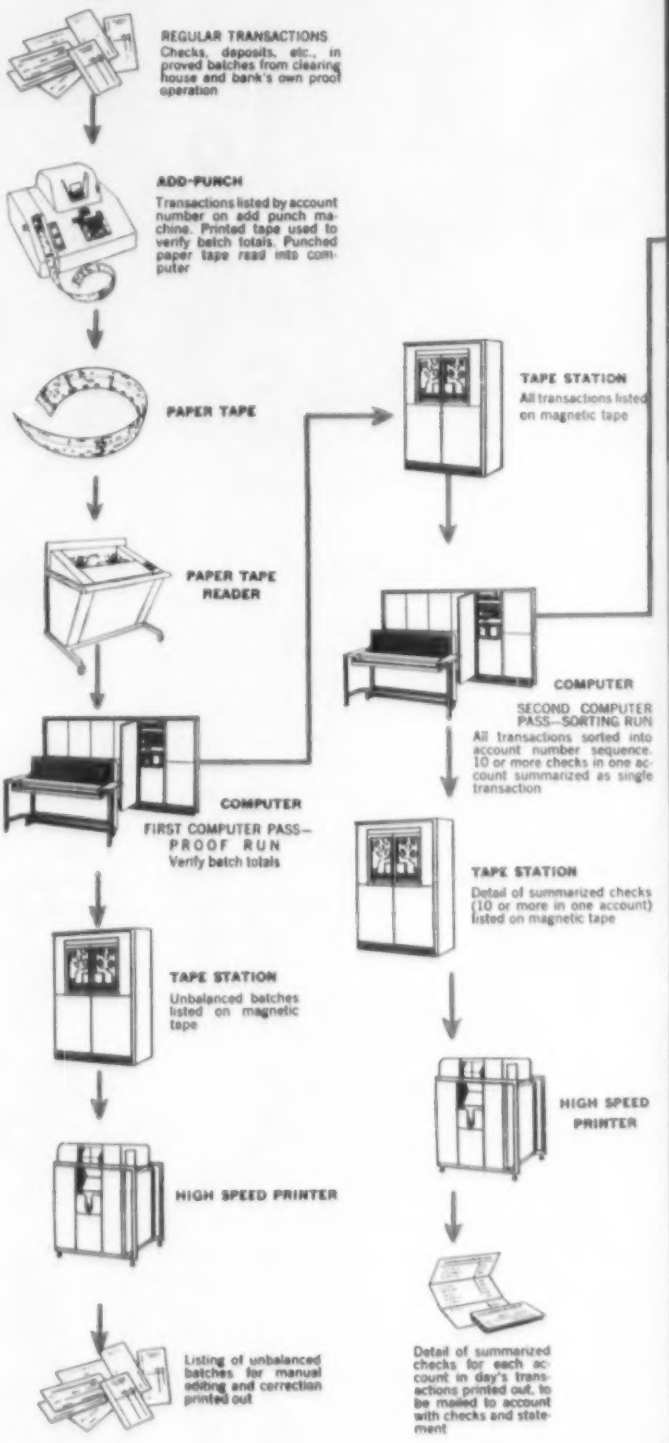
Initially, eight tape stations will be adequate for our system's bulk data storage and working files. We can add more stations when we need them, up to a maximum of 63. Each performs reading, writing, and erasing operations on the magnetic tape, under control of the computer.

Our automated accounting system in operation is graphically illustrated by the flow chart. It describes system operations in the first phase automation of demand deposit accounting.

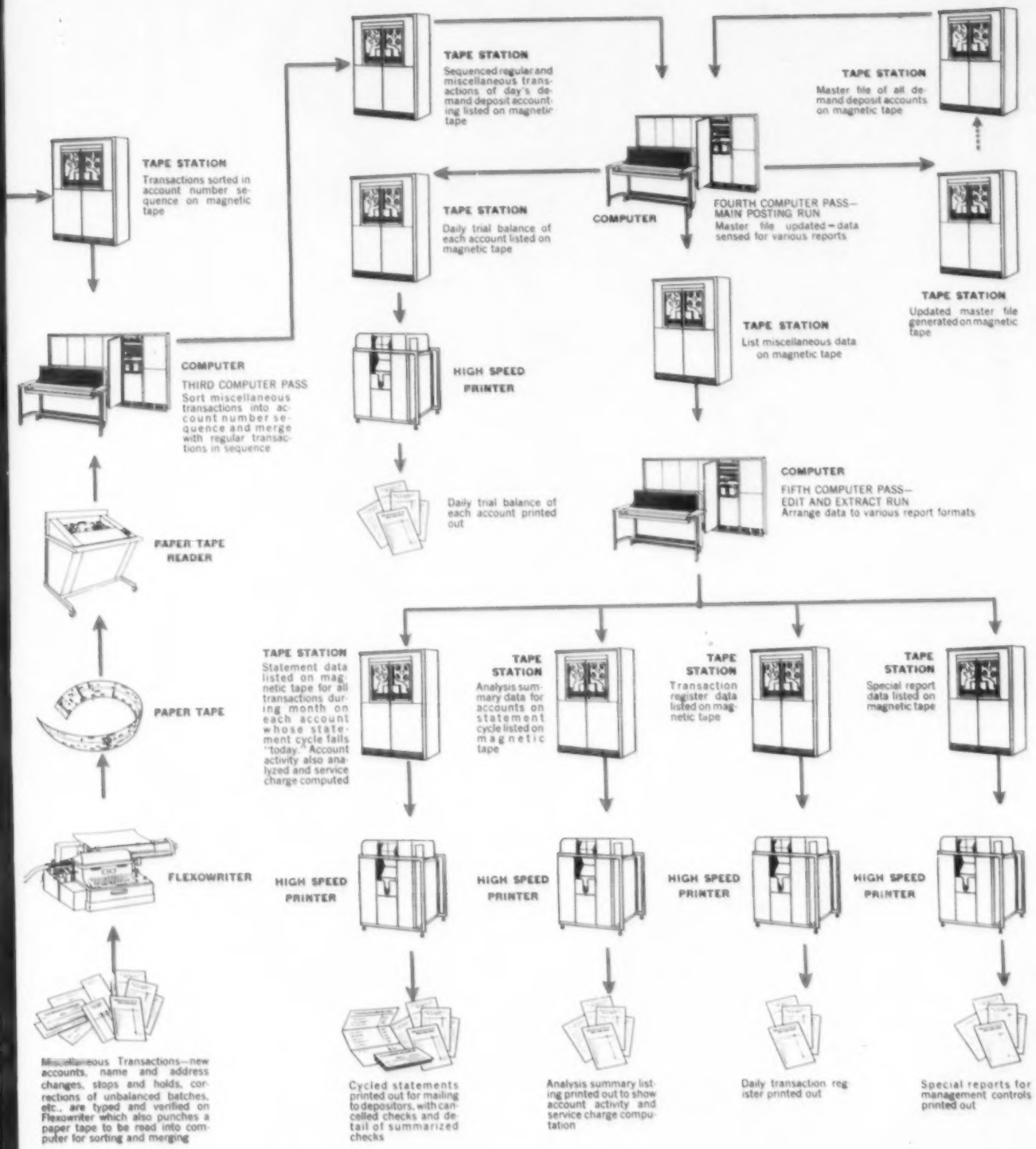
An average of 90,000 checking and deposit transactions a day funnel in for accounting from the Clearing House and our offices—in proved batches. The type of transaction, amount and account number are tallied on an adding machine in print, and simultaneously they are punched in code on a continuous roll of paper tape.

Continued on Page 38

Fidelity–Philadelphia's


REGULAR TRANSACTIONS
Checks, deposits, etc., in proved batches from clearing house and bank's own proof operation
ADD-PUNCH
Transactions listed by account number on add punch machine. Printed tape used to verify batch totals. Punched paper tape read into computer
PAPER TAPE
PAPER TAPE READER
COMPUTER
FIRST COMPUTER PASS—PROOF RUN
Verify batch totals
TAPE STATION
Unbalanced batches listed on magnetic tape
HIGH SPEED PRINTER
Listing of unbalanced batches for manual editing and correction printed out
TAPE STATION
All transactions listed on magnetic tape
COMPUTER
SECOND COMPUTER PASS—SORTING RUN
All transactions sorted into account number sequence. 10 or more checks in one account summarized as single transaction
TAPE STATION
Detail of summarized checks (10 or more in one account) listed on magnetic tape
HIGH SPEED PRINTER
Detail of summarized checks for each account in day's transactions printed out, to be mailed to account with checks and statement

Automated Accounting System


TAPE STATION
Sequenced regular and miscellaneous transactions of day's demand deposit accounting listed on magnetic tape
TAPE STATION
Master file of all demand deposit accounts on magnetic tape
TAPE STATION
Transactions sorted in account number sequence on magnetic tape
COMPUTER
FOURTH COMPUTER PASS—MAIN POSTING RUN
Master file updated—data sensed for various reports
TAPE STATION
Daily trial balance of each account listed on magnetic tape
TAPE STATION
Updated master file generated on magnetic tape
TAPE STATION
List miscellaneous data on magnetic tape
COMPUTER
THIRD COMPUTER PASS
Sort miscellaneous transactions into account number sequence and merge with regular transactions in sequence
HIGH SPEED PRINTER
Daily trial balance of each account printed out
COMPUTER
FIFTH COMPUTER PASS—EDIT AND EXTRACT RUN
Arrange data to various report formats
PAPER TAPE READER
PAPER TAPE
TAPE STATION
Statement data listed on magnetic tape for all transactions during month on each account whose statement cycle falls "today." Account activity also analyzed and service charge computed
TAPE STATION
Analysis summary data for accounts on statement cycle listed on magnetic tape
TAPE STATION
Transaction register data listed on magnetic tape
TAPE STATION
Special report data listed on magnetic tape
FLEXOWRITER
HIGH SPEED PRINTER
HIGH SPEED PRINTER
HIGH SPEED PRINTER
HIGH SPEED PRINTER
Miscellaneous Transactions—new accounts, name and address changes, stops and holds, corrections of unbalanced batches, etc., are typed and verified on Flexowriter which also punches a paper tape to be read into computer for sorting and merging
Cycled statements printed out for mailing to depositors, with cancelled checks and detail of summarized checks
Analysis summary listing printed out to show account activity and service charge computation
Daily transaction register printed out
Special reports for management controls printed out

By Eugene Whitmore

Don't Apologize for Automation Showcase Your Computer!

WHETHER they will admit it or not, there is a tendency on the part of some executives to soft-pedal their company's move to business automation.

Reasons vary—some are fearful of being accused of buying a "gold brick," some worry about charges of reckless expenditures for equipment which is in effect replacing an adequate system, and others see problems arising from employe adjustment.

On the other hand, there are those progressive business leaders who take the opposite viewpoint. They are proud to tell their employes, stockholders and customers that they plan to modernize their business procedure to improve customer service, lift paper work burdens from the shoulders of both employes and management, and insure greater accuracy in many operations of their company.

"We the People" automate

Among the latter is Merrill Lynch, Pierce, Fenner and Smith—the collective "We the People" of the financial world. In their New York home office today, they operate one of the world's largest and most comprehensive electronic data processing installations in private business.

Far from being hidden from the public's eye, this installation was heralded as a big step forward in customer service. It stands right out for the world to see, and in fact, the public is actually invited to inspect the premises. Not content with the many benefits operation-wise, the firm is actually utilizing its million dollar-plus investment in equipment as a public and customer relations tool.

When management decided to install an IBM 705 computer and related equipment, employes were notified of the decision and it was clearly spelled out that there was no danger that the system would cost anybody his or her job. It was pointed out—and later proved—that the system would in fact create many new jobs and job opportunities along the way.

This reassurance was considered important because the company was aware that there were stories circulating that the offices of the future will operate with one or two people pressing buttons and the machines doing all the work. This was step one in the company's approach to automation—the realization that good public relations begin with good employe relations.

Merrill Lynch then prepared a humorous, informal but informative booklet for stockholders, partners and customers. This booklet was appropriately titled "WE Found a Million Dollar Baby," and it explained the "whys and wherefores" of the switch to automation.

It graphically points out that the "paper work involving our constantly rising list of customers . . . 100,000 . . . 150,000 . . . 250,000 . . . 300,000" has skyrocketed. Since 1947 the total number of employes has more than doubled, from 2,700 to over 6,000 today, and yet this is not enough. The volume of business has stayed ahead of the company.

This last point was dramatically illustrated by the fact that several months after the installation of the first 705, another was added to the system. Because of this move, Merrill Lynch has been in a strategic position in coping with the recent behavior of the stock market which has been putting pressure on every brokerage office in the country.

Some idea of the paper work load is expressed in the booklet. MLPF&S handles an average of 20,000 transactions daily, which is the company's share of a 3.5 million share day on the markets.

Five tapes are converted from punched cards to create the day's transactions. Tape one has all the information necessary to print the Clearing House blotters for settlement and balancing purposes. Tape two produces all the trades, figured all the way, into customer orders. This, in turn, is

Merrill Lynch is proud of its computer installation and goes to extra efforts to have customer (and employes) understand the many advantages of the system.

ready to be reproduced into perforated teletype tape for local billing purposes for area offices.

Tape three is the master record of all computed trades for the day. This is ready to go to the next step of preparing seven more tapes from which the company produces its immediate daily firm records as well as the master record for the month. Master records include the takeoff to stock record, the business sheet to the settlement-day sheets, the holder's file, and other similar information.

A talk for the tourists

Tape four contains only the New York customers' confirms. These are printed and mailed locally. Tape five was designated to print a trade reference list which is available whenever anyone wants to find a particular item.

Merrill Lynch made it clear, in the booklet, what the new system meant in space and work time saved. The stock record was kept in 20 tabulating card-file cabinets that took up 100 square feet of floor space. The same records are now recorded on 12 or so reels of magnetic tape which can be stored in a deep desk drawer.

The detail file, necessary to print the monthly statements, required a card storage of 50 cabinets on 300 square feet of floor space. On 90 tape reels, it requires the equivalent of one five-drawer, letter-size filing cabinet!

At the full completion of the system, the installation replaces four calculators, 18 accounting machines, 55 collators and 28 other business machines. But—the booklet explains—there will always be a tabulating department. This means the retention of approximately 40 machines for the "motor scooter" jobs that are not big enough to require the services of the 705.

Today visitors are welcome to see the 705 in action. Trained guides will take the customer or the stockholder on a complete tour. A recorded talk, in simple language, explains the system to the visitor.

There is no apology on the part of Merrill Lynch, Pierce, Fenner and Smith for spending money on a business automation system that provides service for its customers and is aimed at reducing costs. Management, here, is willing to tell the whole story. ■

By Robert Minor

New concepts in housing record files brings speed, efficiency, and comfort to business filing operations.

Files and Business Automation

WHILE most of the publicity and glamour associated with business automation has been reserved for computers and other high-speed electronic equipment, equally spectacular accomplishments have been made in the less publicized area of record filing.

The selection of proper record housing equipment is an extremely important factor in any successful application of business automation. However, even where the filing operation has no connection with automatic data processing, many companies have accomplished dramatic reductions in clerical costs and increased the efficiency of document handling by installing mechanized filing equipment.

For example, at the Minneapolis headquarters of the Billy Graham Evangelistic Association, over 10,000 pieces of correspondence come into the office weekly, not only from the United States, but also from 75 other countries of the world.

A comprehensive record of the name and address of each correspondent and contributor is kept on individual cards. This huge card file of Billy Graham's legion of followers is maintained in 21 Conve-Filers, a product of Remington Rand.

Great numbers of these cards must be referred to daily in processing and tabulating the incoming mail. With the Conve-Filers, clerks need only press a foot pedal and the mechanical feature of the unit delivers the tray in which any given card is located right in front of the operator. The files are not only time-savers, but also, for the most part, eliminate human errors and a great deal of worker fatigue.

At the Manufacturers Trust Co. in New York, the stooping, pulling and sprinting that once characterized the job of keeping track of the bank's 1,175,000 cumbersome index cards has given way to a smooth, push-button operation.

Five Diebold Super Elevator Files now house the account index, streamlined to 740,000 3 by 5 cards. Where before a staff of 22 girls had to hike, stretch, stoop and wrestle with heavy file drawers to check account information, 13 employes now handle the entire filing operation.

Girls wearing phone headsets sit comfortably at the mechanized files, furnishing immediate information without lifting the cards from the file. Gone is the wasted time and motion, and the 140 four and five-drawer cabinets which previously housed the index file.

Volume and morale go up

Blue Cross, Blue Shield in Salt Lake City maintained 5 by 8-inch membership cards in upright seven-drawer files, creating a tiring and boresome task for the file personnel each day in pulling the cards for changes and reference for claims. Since writing was impossible at the files

A battery of Diebold Super Elevator Files supports the electronic posting operation at the First Pennsylvania Banking and Trust Co. in Philadelphia.

themselves, it was necessary to pull all cards for the changes and claims received and return to a desk to do the necessary writing work. The cards then had to be refiled—with considerable misfiling the result.

Switching to Mosler's Roto-Files has brought about a considerable increase in the volume of work from each file clerk as well as an increase in employe morale. The Roto-File has eight independently operating drums and a work area across the entire face of the unit. It is so designed that three clerks can work in each file at the same time.

A mechanized visible record system is used to augment a punched card operation at H. Daroff and Sons, Inc., a Philadelphia clothing manufacturer. The firm's 3,000-odd customer accounts are set up in separate record pockets, visibly indexed by name, account number and salesman number. The records are housed in a Remington Rand Robot-Kardex, an electrically operated unit that automatically finds, delivers and refiles trays at the touch of a button.

Each pocket contains a current sales record as well as a historical record. An adjustable colored signal serves as a vivid indication of the relative "health" of the categories. Every day, as soon as orders from the field have been processed by the tabulating department, they are routed to the Robot-Kardex clerk for posting. Thus the posted record system provides Daroff's management with an immediate visible check of customer activity.

Four Rol-Dex work stations hold customer records for the Arrow Petroleum Co. in Forest Park, Ill.

Mosler's Roto-Files provide ready access to membership records of Blue Cross in Salt Lake City.

Locating, selecting and refiling of input information is often the costly bottleneck in data processing applications, usually because the systems people overlook the importance of proper record-handling equipment. But where the need for adequate record housing is recognized, the manufacturers will usually respond with the necessary filing equipment.

An automated pace

Faster finding and pulling of punched cards used in the automatic order writing system of Chicago's Danly Machine Specialties, Inc., was a critical need. Using IBM's Card-A-Type machines, it was Danly's desire to have the machine operators pull, insert and refile cards right at the machine rather than to pull decks as a separate operation.

Danly found the answer in two Wassell Card Rotor-Files with two-tiered units. The files, housing 14,000 cards, are adjacent to each of the Card-A-Type keyboards. The two operators can work continuously, passing cards when necessary from one to the other, without leaving their positions. Finding cards is much faster since the cards are filed radially, with the top line on every card almost instantly visible.

The Minneapolis-Honeywell Regulator Co. in Morton Grove, Ill., uses Friden's Flexowriters to write from 200 to 400 orders each day. Nearly 5,000 product cards, and more than 1,000 customer tapes and numerous special-entry tapes, are available for automatic processing through the IDP equipment.

The success of the system hinges on the immediate availability of this common-language information at all times. Delays in searching out or re-filing tapes and cards can seriously cut into the efficiency of the IDP machinery. Key to the system is a VISIrecord tray unit containing tape pocket cards and edge-punched cards, both products of VISIrecord designed specially for use in the high-speed filing units. The visible-vertical filing provides instant selection of tapes and cards, allowing the operator to maintain the pace required for efficient operation of the high-speed equipment.

A combination of a card file and a paper tape file, both products of Acme Visible Records, Inc., provides the American Viscose Co. casings division sales office with an errorless system of transmitting complicated orders to the factory.

Most sausage casing orders, which are generally standardized except for quantity, contain printing instructions which must be followed to the last comma to comply with Federal law. To assure quick and correct transmission of the orders to the plant, American Viscose has prepunched each customer's standard orders on Friden Flexowriter tapes.

No chance for error

These tapes are coded by number and filed in an Acme unit which will hold up to 1,500 tapes. A companion file contains a master card for each customer and a follow card for each standard casing order. Code numbers on these cards guide the clerk in selecting the proper tape which includes the customer's name, shipping instructions, and the printing information. When placed on a Flexowriter the tape prepares the order copies as well as another punched tape which will be placed on a teletype machine for transmission to the plant.

The Robot-Kardex of Remington Rand finds, delivers and refiles Kardex trays at the touch of a button.

VISIrecord unit gives Friden Flexowriter operator fingertip selection of punched tapes and edge-punched cards.

An alphanumerical filing system, housed in four Rol-Dex work stations (a product of the Watson Mfg. Co.) controls approximately 20,000 retail customer accounts for the Arrow Petroleum Co. in Forest Park, Ill. The installation is split down the center by a conveyor belt which connects the work stations with the company's teletype department.

Oil for the tanks

Approximately 80 percent of Arrow's customers are on an automatic delivery basis which means their oil tanks are filled at regularly scheduled intervals. These intervals are determined by a technical forecast made annually and based on individual needs. When the forecast is made, the customer is assigned a "degree day" number (the "degree day" is commonly used in the oil industry to determine fuel consumption during the year), and a delivery forecast record card is filed numerically (by "degree day" number) in the bottom trays of the Rol-Dex.

Degree day numbers are posted daily on a bulletin board in the office, and at a specified time, forecast cards with the same number are pulled from the file in a batch.

These cards are compared with an alphabetical file of tape-carrier envelopes in the top trays of the unit. These envelopes contain all pertinent information on a pre-printed form on the outside. This includes customer's name, address, type of service, credit standing, salesman's name, degree day number, etc. The punched tape inside contains that part of this information necessary to set up a delivery and order at the bulk plant.

When a delivery is scheduled, the envelope containing the punched tape is placed on the conveyor and sent to the teletype department where the tape is fed to a teletype machine and the order placed with one of the bulk plants.

The alphabetical file also serves as a customer service file. Each girl handling a work station and section of the alphabet has a customer-service name, such as Miss Adams for the beginning of the alphabet or Miss Mason for the letters M to S. When a customer calls regarding his account, he is referred to the proper girl who has complete information at her fingertips.

As close as you can get

The Underwood Corp.'s Electrofile appears to be about as close to total automation in record filing as a company can get. This automatic card filing machine actually permits random filing of ledger cards. The cards may be filed in Electrofile with no sequence, yet any card desired, or any group of cards, may be selected instantly. In order to locate a card, it is simply necessary to index the information on the machine's keyboard, similar to that of a typewriter, and the desired card, or cards, is instantly available. Pressing a key produces the card, regardless of its location in the file, making a misfiled card an impossibility.

The Electrofile system uses a standard ledger

A two-tiered unit Card Rotor-File, product of Wassell Organizations, Inc., allows billing clerk to maintain automated pace of IBM Card-A-Type operation.

file card with an added strip of thin metal teeth along the bottom edge. The strip does not interfere with processing the cards through typewriters and posting machines. The same keyboard that activates the file also codes the metal edge for any category desired. The cards are housed in trays which hold up to 1,000 each. The multi-tray Electrofile unit accommodates 5,000 cards.

The General Fireproofing Co., which recently took over the Ferris Rotary Files, has come up with a unique and practical answer to accessibility of card records by more than one person at a time. Called the GF Double-Acting Super-Carder, the new file has drawers that can be opened from either the front or rear. Since the cards are filed crosswise, this permits reference from either side.

The Customer Accounting Department of Peoples Gas, Light and Coke Co., and the Customer Location Records of the Potomac Electric Power Co., are two companies that have speeded up customer reference by using these new Super-Carders.

Automate the antiques

While considerable effort has been placed on mechanizing the filing and selecting of input information for business automation, the manufacturers have also taken into consideration the need for automatic handling of the output from a high-speed data processing system.

An excellent example is the Acme Visible Records motorized rotary file used in the customer service center of the Chicago and Northwestern Railroad's Car-Fax system (see MANAGEMENT and BUSINESS AUTOMATION, May 1959 issue). The center section of this file revolves to put current records of the road's 50,000 freight cars within instant reach of six comfortably-seated clerks who handle customer inquiries by phone. The section holds books of complete car-movement records which are updated every 24 hours, as well as a series of hourly reports which are released by the adjoining data processing center.

One thing is certain. With the equipment available today, there is no justification for saddling a system—or personnel—with an antiquated record filing operation. Whether feeding a giant computer system or answering telephone inquiries, there is some form of automated filing equipment that will increase efficiency—and morale.■

Six clerks, seated around motorized rotary files developed by Acme Visible Records, handle all customer inquiries for Chicago & Northwestern's Car-Fax operation. Pressing a button brings data on 50,000 daily car movements to clerk's position.

POWERFUL, LOW COST
... EASY TO USE

Bendix G-15

GENERAL PURPOSE
DIGITAL COMPUTER

To keep this special bulletin, pull through staples

THE BASIC G-15 COMPUTER

is a complete computer

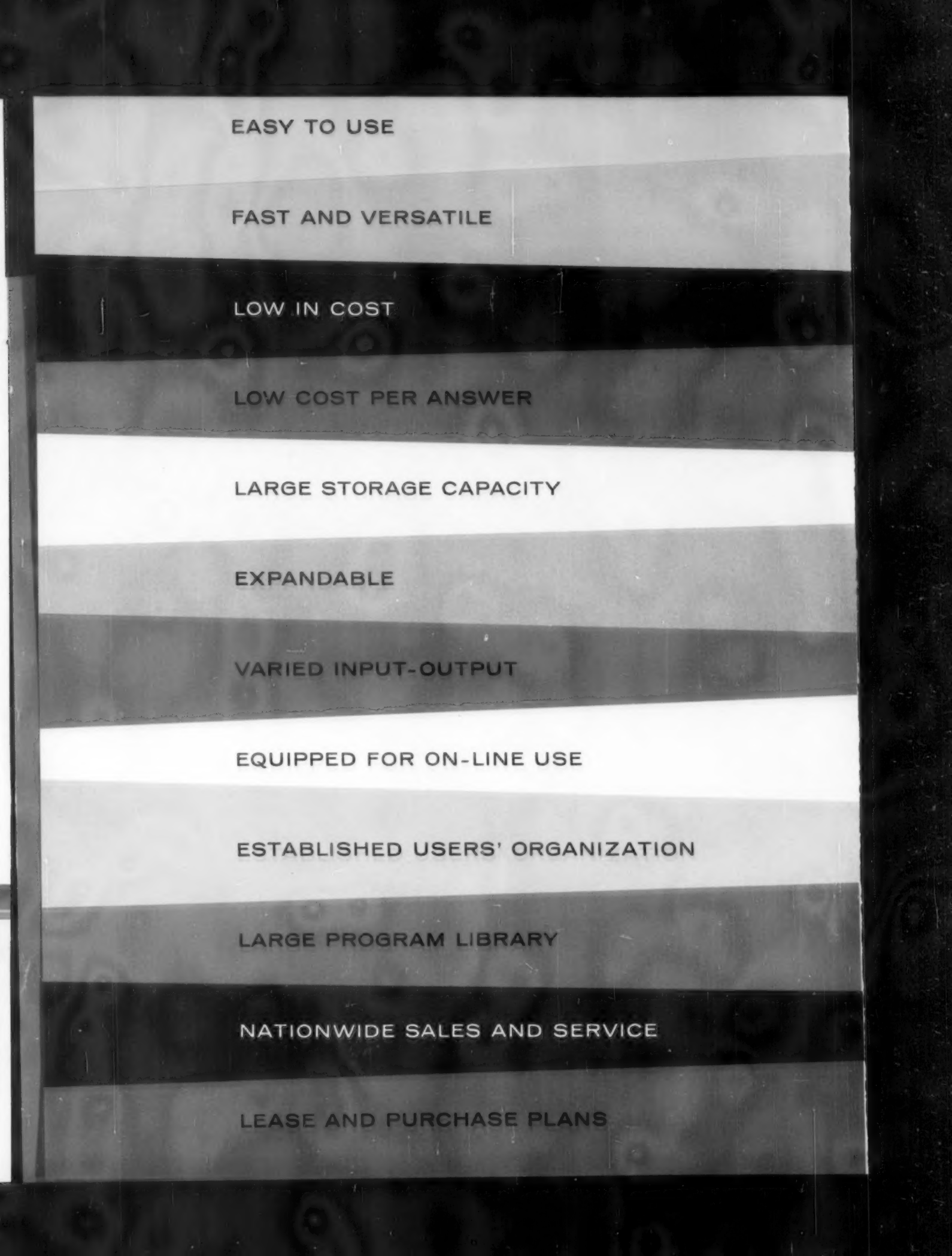
...with many extra features

The basic G-15 computer installation is a complete operating computer system. It includes an internal magnetic drum memory of 2176 words, an electric typewriter, a fast tape punch and a unique high-speed photo-electric tape reader, all furnished at no added cost.

The photo-electric reader accepts 2500 word magazines of punched tape which can be kept in a convenient library and placed in reading position quickly and neatly. Under program control, tape can be searched in either direction or read at 250 characters/second, simultaneously with computation. The computer's memory can be completely loaded from paper tape in 90 seconds or less, including input checking. Thus this exclusive G-15 reader greatly expands the storage capacity of the basic computer, when such capacity is needed.

The electric typewriter is used for control, and may be used to directly interrogate and address the computer's memory, to debug new programs, and to accomplish manual input and printed output. The fast tape punch provides output at 17 characters/second.

To keep this special bulletin, pull through staples


EASY TO USE
FAST AND VERSATILE
LOW IN COST
LOW COST PER ANSWER
LARGE STORAGE CAPACITY
EXPANDABLE
VARIED INPUT-OUTPUT
EQUIPPED FOR ON-LINE USE
ESTABLISHED USERS' ORGANIZATION
LARGE PROGRAM LIBRARY
NATIONWIDE SALES AND SERVICE
LEASE AND PURCHASE PLANS

AUTOMATIC PROGRAMMING *with simplified new techniques*

POGO

The newest of the versatile G-15 programming systems, POGO recodes simplified programs into machine language, and selects the location in its memory where each instruction can be found in the shortest possible time. Thus, a programmer with very little experience can write high-speed production programs.

POGO commands are very similar to those used in the INTERCOM 1000 system. The principal difference in the two systems is that POGO compiles an optimum machine language program requiring no interpretation during computation, and reproduces it for repeated use. While INTERCOM 1000 is ideal for open shop problems, POGO may be preferred for high-speed production problems that must be solved repeatedly.

In POGO, data is handled in fixed point decimal form. Seventeen accumulator registers are available, as well as twelve index registers, which can be used to modify the effective address of any command.

INTERCOM 1000

With just four hours of instruction, personnel who have had no computer experience can easily solve long and complex problems, using simplified INTERCOM 1000 programming.

Since this programming system was developed, many companies have found new efficiency through high-speed computation right in the office or laboratory. There, problems can be solved not by computer experts, but by the personnel who know those problems best. This new problem-solving technique has been made possible by INTERCOM 1000. The secret is INTERCOM 1000's interpretive ability . . . to make a single, simplified command perform a number of internal computer operations. Since the operator needs to know only the few simple commands, valuable time is saved in both training and actual programming.

INTERCOM 1000 input and output data can be in normal decimal form or can be represented by a decimal fraction preceded by a power of 10. For example, the number 186.02 may be represented in input or output as either 186.02 or as 53.18602, where the 53 represents the exponent 3, expressed in excess 50 form. Without changing commands, INTERCOM 1000 will operate with either a five or a twelve decimal digit word of positive or negative value.

INTERCOM 1000 commands are single address. Memory addresses may be modified automatically by index registers. The command list contains all arithmetic operations, transfers of control for decision making, input-output operations, and special commands for facilitating the use of subroutines.

BASIC CODING

The G-15's basic machine language system is exceptionally powerful and versatile. A modified two-address system, it includes logical extracts and various tests as well as all arithmetic operations. Using this system, the G-15 offers internal control unequalled by other computers of its size.

SPECIFICATIONS *using basic programming system*

EXECUTION TIMES

Add and subtract

Single precision — 0.27 msec.

Double precision — 0.54 msec.

Multiply and divide

Single precision — 2.16 to 16.9 msec.

Double precision — 5.16 to 32.3 msec.

G-15 multiplication and division is of arbitrary precision. Figures above represent the range between single decimal digit precision and maximum precision. Access time to magnetic drum storage locations can be minimized and often eliminated through use of the G-15's fast access coding facilities. The time required to read any command is 0.27 milliseconds.

STORAGE

2176 words of magnetic drum memory

16 words are fast access . . . 0.54 msec. average

2500 word searchable, high-speed paper tape magazines

BUFFERING

108 words of memory drum may be used as a buffer, to allow computation during input and output operations.

AUXILIARY STORAGE

Six magnetic tape units, under accessories.

NUMBER SYSTEM

Decimal, input/output

Serial binary, internal

WORD SIZE

Single precision

7 decimal digits, input/output

29 binary digits, internally

Double precision

14 decimal digits, input/output

54 binary digits, internally

Any command may be specified to be single or double precision.

ACCESSORIES

No other computer offers such a wide variety of standard accessories. All of the units listed below, plus many special devices, may be connected by means of plugs on the back of the computer. Thus, the user may start with the basic equipment and add expanded capacity as his needs grow.

PUNCHED CARD AND TABULATOR COUPLER
model **CA-2**

Allows use of up to three standard IBM punches, readers and tabulators with G-15, for high-speed punched card input and output, and printed output. Handles full 80 columns of mixed numeric, alphabetic and special character data. Lowest cost complete system on the market.

speed: Input—
100 cards/minute
Output—
100 cards/minute
100 lines/minute

MAGNETIC TAPE UNIT
model **MTA-2**

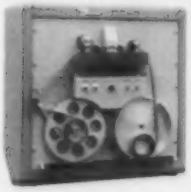
For auxiliary storage, up to four of these inexpensive units may be connected to one G-15. Each stores 300,000 words, and can be searched for blocks of up to 108 words or for file sections of any number of blocks.

speed: Input/output—430 characters/second
Search—2600 characters/second

PUNCHED CARD COUPLER
model **CA-1**

An inexpensive unit for small volume, low-cost punched card operations. One or two IBM 026 reader-punches may be used with one coupler.

speed: Input—17 columns/second
Output—11 columns/second



MULTI-CODE PAPER TAPE READER
model **PR-2**

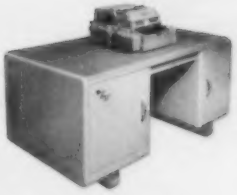
High-speed input from 5, 6, 7 or 8 level paper tapes bearing any numeric code. Stops on one character. Immediately converts external code to G-15 code, without internal programming. External code changes can be made in seconds. Accepts tapes from the G-15 or any other device.

speed: Input—400 characters/second

DIGITAL DIFFERENTIAL ANALYZER
model **DA-1**

Enables the G-15 to operate as a digital differential analyzer for the simplified solution of linear and non-linear differential equations. Provides 108 integrators and 108 constant multipliers.

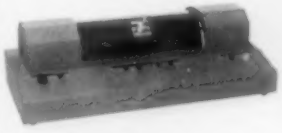
speed: 34 iterations per second



UNIVERSAL CODE ACCESSORY
model **AN-1**

This accessory provides compatibility between the G-15 and other computing, data handling and communications devices. Any alphanumeric code of eight levels or less can be read into the computer, operated on, and fed out in the same or another code, all under program control. The AN-1 is equipped with high-speed paper tape reading and punching devices, but may be connected directly to other input and output devices.

speed: Input/output—with standard paper tape—60 characters/second
Input/output—with other devices—up to 225 characters/second



GRAPH PLOTTER
model **PA-2**

Plots the output of the G-15 or DA-1 in .01 inch increments.

speed: Output—20 increments/second

Many industrial, scientific and merchandising organizations are finding imaginative solutions to a wide range of problems through computer inspired mathematical and data processing methods. The Bendix G-15 is the key to such progress in over 200 of these private companies and government agencies, throughout the world.

With its unusually flexible programming systems, the G-15 is ideally suited to both repetitive and non-repetitive problems, regardless of complexity. Users range from one man consulting firms to the world's largest universities and manufacturers.

You are invited to discuss the application of the G-15 to your own specific requirements. Complete literature is available on technical specifications, accessories and applications. In addition to numerous reports on a broad scope of applications, a special bulletin describes in detail the characteristics of the G-15 that make it ideal for on-line data processing and control systems. Ask for a copy.

Contact your nearest Bendix Computer office, staffed by experienced personnel. They will be happy to advise you.

To keep this special bulletin, pull through staples

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DALLAS 1, 1511 Bryan Street, Riverside 7-8805

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LOS ANGELES 45, 5630 Arbor Vitae Street, SPring 6-2220

NEW YORK 17, 205 East 42nd Street, ORegon 9-6990

SAN FRANCISCO, 1330 Broadway , Oakland 12, California, GLencourt 2-3664

ST. LOUIS, 460 Ridge Drive, Florissant, Missouri, TEmple 7-9572

TUCSON, P. O. Box 4333, University Station, MAin 3-0106

WASHINGTON 6, D. C., 1000 Connecticut Avenue, N.W., STerling 3-1508

CANADA, Computing Devices of Canada
P. O. Box 508, Ottawa 4, Ontario, Canada, PArkway 8-1761

OTHER COUNTRIES, Bendix International Division
205 East 42nd Street, New York 17, New York, MUrrayhill 3-1100

Service centers in all principal cities throughout the United States.

Bendix Computer

division of

BENDIX AVIATION CORPORATION

Los Angeles 45, California

BULLETIN AB-059

LITHO IN U.S.A.

Bank drafts and charges are verified for accuracy of totals and discounts by clerks using Olivetti Divisumma machines which print results of the calculations on tape.

Carte Blanche

Continued from Page 12

credit and payment pattern for each member. If the pattern changes in any given month, management receives an automatic warning of the change.

The master record card is also unique in that it serves as the equivalent of an account history ledger. A complete history of the member's activities is available from the card at all times.

An unusual method is employed to confine the accumulative billings and charges to the card columns allocated. The totals, expressed in dollars only, have been allotted four columns. When they reach the $10,000 mark, a code is automatically punched to signify dropping of the right hand digit. Another digit is dropped at the $100,000 mark, and a new signifying code punched.

With this method, the original four columns for accumulative amounts can suffice into infinity, and the code identifies the decimal breakdown.

When a cycle is to be billed, all charges and pay-

Mailing of statements and charges and any necessary inserts is handled by Phillipsburg automatic mailing machine.

Statements are segregated for credit reminder notices on the IBM 101 Sorter.

ments are merged behind the corresponding master record card by account number. A blank card, which will become the updated master record, is also inserted. At this point, the IBM 607, a 140-program-step electronic calculating punch goes into action. All but two of the available program steps are utilized in an ingenious calculating operation.

In addition to performing the credit functions and dollar conversions already described, the IBM 607 totals the current charges and payments, adjusts the previous balance, and ages the current balance over a 30-60-90-day-and-over period.

It also indicates, with a code punch, what credit action, if any, should be taken. For example, on certain accounts it will indicate a "gentle reminder" be included with the statement. For others it will specify a certain "stronger" request for payment. Some accounts will be coded for immediate reference to the credit department.

Another function of the 607 is the automatic adding of the six dollar fee the first time the customer uses the Carte Blanche card at other than a Hilton establishment. It also determines when the annual fee is again to be added to the customer's statement, as well as recognizing the

expiration date of the customer's card. The latter results in a signal to issue a renewal card.

Still another action of the 607 is to count the number of charge cards involved in the billing (all the cards are returned to the customer along with the statement) so that automatic postal groupings can be made prior to the mailing operation.

Following the calculating step, the cards move to IBM 403 accounting machines which use a bill-feed device to print the customer statement and remittance advice. Before mailing the charge cards are microfilmed, providing Hilton with a permanent record of every charge. The cards are also passed through the IBM 101 sorter where those statements requiring credit notices are segregated by the type of notice to be inserted.

Automation on the "Strip"

The same 101 operation selects the accounts that are so delinquent as to require personal credit department attention.

The accounts are then listed on the 403 accounting machine which prints an individual ledger card for each delinquent customer. The ledger, containing a complete record of the customer's charge and payment activity, is sent to the credit department for collection proceedings. The ledger is designed so that each step in the collection effort can be recorded on the card, furnishing the credit manager with a current and compact record.

The final step in the automated system is the mailing of statements and charges. Carte Blanche has installed a high-speed Phillipsburg automatic mailing machine, a product of Bell & Howell, which gathers all of the pieces for each account, stuffs them into an envelope, then seals and posts the envelope.

The system is geared to an initial volume of around 200,000 charges and 7,000 statements a day. This volume, derived mainly from Hilton's original one million card holders, will increase rapidly as the plan gains acceptance with world-wide associates.

Carte Blanche is designed for eventual conversion to a magnetic tape computer system, and all present equipment and procedures are compatible to a computer operation. The switch will probably occur as the membership hits the two million mark.

Housing for the machine accounting operation was prepared with such a computer in mind. A raised floor has been installed to facilitate the wiring and air conditioning for the larger equipment, and ample floor space was provided for expansion.

Speaking of housing, the Carte Blanche installation operates in a setting designed to bring sighs of envy to a veteran machine accountant. Thick, wall-to-wall carpeting and huge picture windows, overlooking the famed Sunset Strip of Los Angeles, provide plush surroundings for the automated operation.

Justifiably proud of the Carte Blanche system, Hilton executives are quick to give full credit for the success of the automated program to an outsider, Earl Isaac, a member of the San Francisco consulting firm of Fair, Isaac and Co. He had less than a year to design and develop the complete system—and to select and install the equipment.

A giant steps forward

The "crash" program got under way in January when Hilton's 1,400,000 Addressograph plate file was converted to punched cards by the Los Angeles branch of the Service Bureau Corp., a subsidiary of IBM. This huge punching and verification job was completed in April, coinciding with the installation of the necessary equipment.

One of Isaac's many innovations is the unique account numbering system with its built-in codes that allow the equipment to make logical decisions on charges and credits that would otherwise require clerical handling and effort.

The account number was also designed for compatibility with other credit card systems, a factor that has already led to one major oil company's acceptance of the Carte Blanche plan and a large Western airline as well.

The Hilton decision to enter the all-purpose credit card field is a result of four years of research and study—and a considerable expenditure of cash. Many expert talents have been combined to insure the success of the world-wide plan.

But, far behind the scenes, an efficient, around-the-clock program of "total" automation provides the economic payoff for Carte Blanche—the new giant of the credit card world. ■

Breaking the Bottleneck In Order Processing

A diazotype copying system has saved valuable time and slashed purchasing costs for the A.O. Smith Corp. in Milwaukee.

THROUGH the use of a specialized copying system, the A. O. Smith Corp. in Milwaukee has increased the rate of activity and efficiency in its order-processing operations, eliminated expensive, time-consuming rewriting of order information, and slashed departmental costs by several thousands of dollars a year.

These, in the opinion of James E. Borchert, the firm's general purchasing agent for production materials, are the major benefits of a system designed to expedite and process between 275 and 300 purchase orders each day.

At the same time, management is now provided with a final receiving report which carries a cumulative history of the entire order and a reduction in filing space previously required for these reports.

A Copyflex diazotype copying system, product of the Charles Bruning Co., Inc., has now been in use in the Milwaukee plant for six years.

This plant is the headquarters unit of 12 A. O. Smith plants in the country. Purchasing-receiving activities are highly diversified because of the firm's varied product line. There are seven divisions with 9,000 employes operating in Milwaukee, all using the purchasing department.

A. O. Smith started as a manufacturer of bicycle frames just before the turn of the century. Today it is ranked as one of the nation's largest metal fabricators.

Its product line includes automobile frames, Permaglas and Burkay water heaters, water softeners, heating and air conditioning equipment, electric motors, Harvestore glass-lined farm and industrial storage units, and welding machines and electrodes.

From meters to missiles

For the gas and petroleum industries, A. O. Smith produces line pipe and oil well casing, petroleum meters, pressure vessels and other process equipment. In addition it manufactures gasoline and service station pumps and equipment, fuel tanks, and related components for missiles.

This means a highly diverse flow of materials in and out of the plant each day. Since the copy machine system has been put into action, two types of purchase orders or requisitions have been developed. One is the standard six-part order form for large or complex orders, the other is a rush requisition or "express" as it is called by the company. The latter has been developed to handle simple orders and is handled with a minimum amount of typing or writing.

The standard form is in constant use. After the

Copyflex machines turn out sufficient copies of each purchase order to satisfy the needs of every department concerned. There is never a need to retype an original order.

requisitions have been processed by the buyer they go to the order-service section where vendor, shipping and item information is typed onto the six-part form. Two sheets in this set are translucent to enable copying by the Copyflex machines.

The order-sets are proof read and then distributed. The original copy goes to the vendor, two copies go to accounts payable (one for accounts payable copy and one for numerical filing) and another goes to the requisitioning department.

"At this point," Mr. Borchert explains, "the two translucent copies are brought into the picture. One goes to the Copyflex operator in the order-service department for reproduction of the required number of copies for internal use. The original is then returned to the buyer who keeps it for his records."

The second translucent copy goes to the receiving department and is now designated as the "receiving report." It is held in the receiving file until the vendor makes complete delivery of all items ordered.

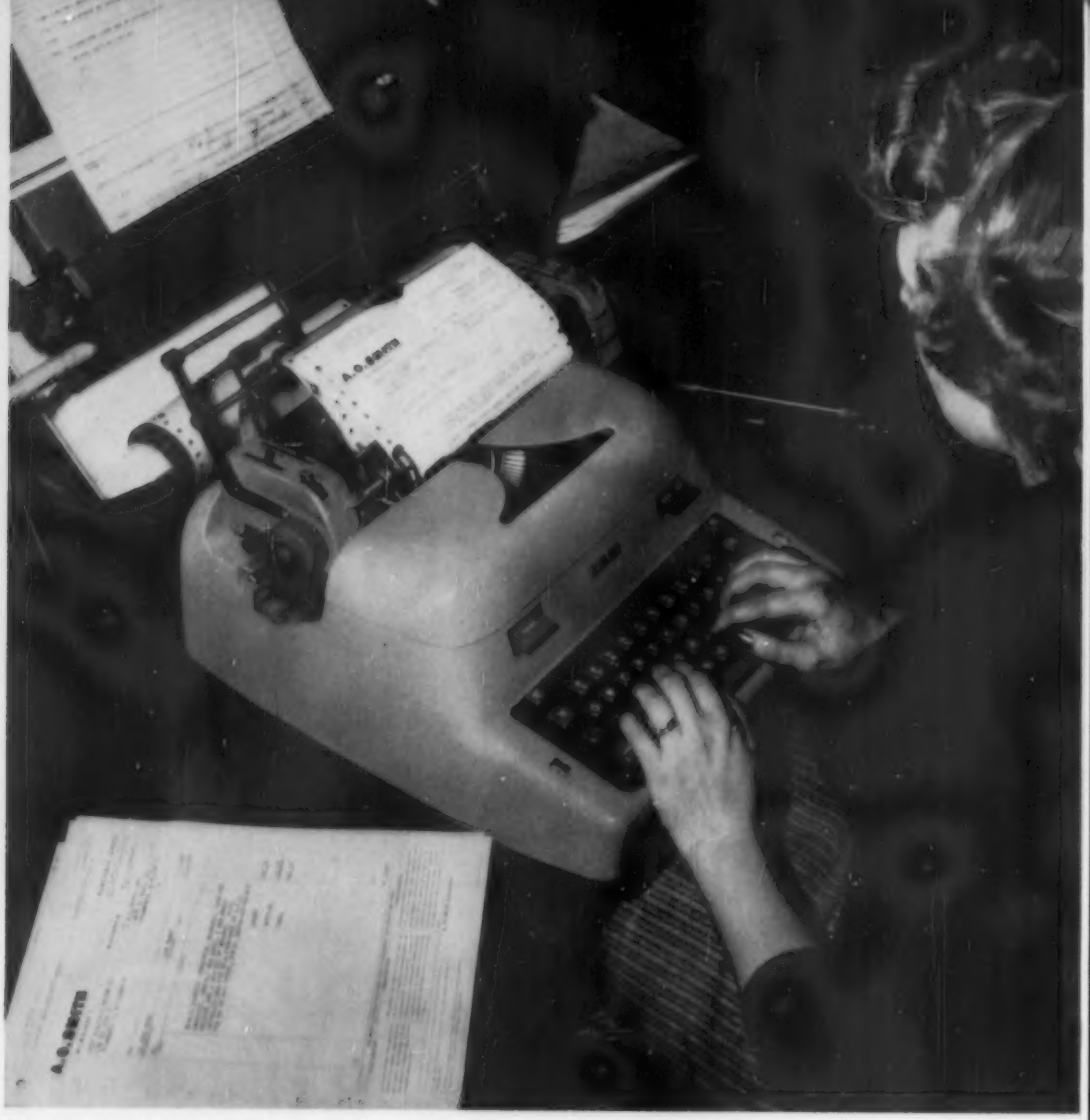
It's here, Mr. Borchert points out, that the system really pays off—when a single order consists of a large number of items delivered at different times in a series of shipments. Even though a separate receiving report is required for each delivery, no rewriting is necessary.

Accurate and updated

As each item on the order arrives, the quantity and date are noted on the original receiving report copy. This report, with the new information, is then run through the copying machine and three copies are produced. One is sent to the accounts payable department, one is sent to the requisition department, and one stays with the shipment.

When another shipment is received, the original receiving copy is brought up to date with a new notation and another set of copies is run off and distributed. This procedure is followed until the entire order is complete.

Because the constant information—vendor's name, carrier, item description, delivery date—remains on the original order, there is no need to



Six-part standard purchase order forms are typed only once. Two translucent sheets in the set become masters for the copying system and eliminate the need for expensive repeat writing as items are delivered or information changes.

James E. Borchert, general purchasing agent for production materials, views the system as saving thousands of dollars in department costs each year.

rewrite this each time a new shipment comes in. This fosters accuracy and realizes a significant saving in typing man hours.

When the final shipment arrives, the up-dated order now has a cumulative history of each item delivered, as well as the delivery date for each.

This means that the department management receives a complete picture of deliveries. They can tell how fast vendors are getting the items to the plant, and they can get some idea of how long it will take to receive items still on order. Action can be taken to speed up shipments, if necessary, to prevent shortages from developing.

Cut to the bone

At the same time the one translucent sheet is being utilized in receiving, the other copy is also playing an important role. "It enables the buyer at A. O. Smith to furnish additional copies of the order as required," Mr. Borchert noted.

Frequently, production or engineering officials connected with the project for which a particular item is being purchased will ask for additional copies of the order. At other times, especially in the case of cost-plus-fixed-fee contracts, the request comes from the customer. In either case as many as 15 copies of the original purchase order may be required.

There was a time, he said, when obtaining extra copies was often difficult. If only a small number of copies were required, they were prepared on the typewriter at the same time the original order set was prepared. As a rule, order data had to be typed a second time, on a second set of blank sheets, because it was impossible to insert all of the original set, plus the copies required, into the typewriter. This meant constantly incurring order-processing time and labor costs.

With the copy machine system in operation, proof-reading time has been cut to the bone. In the order-service section, the system has saved several dozen clerk hours a week, and the typing bottleneck has been eliminated.

An express purchase

The development of the rush or "express" requisition and order is the other main advantage of the system. These orders are usually simple or stock requirements coming from the stock or production control departments. They may be going to local suppliers or can even be made by telephone.

However, they are often important parts or items which cannot be stockpiled ahead of time in large quantities, so any delay in getting the order processed means a delay in production operations.

It was once possible for a rush requisition to go out and have the materials delivered before the purchase order was cleared to the receiving department. This meant the shipment had to wait for processing.

Now, express requisitions bypass typists completely. They go directly to the buyer who makes the source of vendor notation and other direct information, and from there they go to the order-service control center where the express order is produced on an "assembly line" basis.

First step for the express is the copying of a blank, preprinted purchase order form on sensitized paper. This is done by making a "sandwich" to feed the copying machine. The bottom layer is the sensitized paper, the filling is an opaque acetate mask cut to expose the heading at the top of the form and the instructions at the bottom. The top layer is the blank form.

When this combination is run through the Bruning machine, the heading and bottom instructions are transferred, but the remainder of the sensitized paper is not exposed. Variable information from the express requisition is written or typed in the unexposed area, and this is again fed into the machine—with the mask off. The result is a completed purchase order.

The correct and necessary number of copies are prepared and sent to the right departments as well as the vendor.

This approach to expediting simple or express orders means that these orders are usually in the mail a few hours after the purchase requisition arrives for processing.

One form for filing

The copying process utilized in this type of an operation is essentially simple. Information to be copied is always recorded on a translucent sheet of either paper of film called the master. This is inserted into the machine on top of a sheet of sensitized paper. Both papers travel past a high intensity light source which deactivates the coating on the sensitized paper wherever it is not blocked by the writing or printing.

Once the two sheets pass the light source, the master is ejected and the sensitized paper passes through the developer rolls which develop the unexposed areas into a black-on-white, permanent reproduction.

As it was pointed out in the beginning, the new system has another benefit—filing space has been reduced in the receiving department. One form, containing a cumulative history of each shipment in the order, is all that must be filed. This has resulted in an actual reduction of 50 percent in filing space.

"The total value of all these benefits," Mr. Borchert sums up, "is literally thousands of dollars saved annually in our operation." ■

Fidelity's Move

Continued from Page 16

The tapes are read into the computer for the proof run. The amount of each transaction within the batch is accumulated, and, if the batch total and computer total don't balance, the unbalanced batches are printed out for clerical editing and correction, but posting is not held up.

In the second computer run, the transactions are sorted into account number sequence on a magnetic tape. Simultaneously the number of check transactions in each account are counted. If there are 10 or more check items in one account, they are summarized into a single transaction on the regular transaction tape. A detailed listing of the separate checks is made on a summary tape, and this is printed out for mailing with the checks and statement.

For the third computer run, a punched tape of miscellaneous transactions—corrections of the unbalanced batches printed out in the proof run, "stop payment" and "hold" orders, new accounts, changes of address, etc.—is merged with the tape of the regular transactions in account number sequence.

Updated every morning

The fourth and main posting run updates the master file, senses for various reports for a miscellaneous data tape, and generates another tape of the daily trial balance which is printed out. At the start of business every morning, all 25 offices will have an updated trial balance of its accounts.

The final (fifth) computer pass winds up the day's accounting work, editing and extracting the data for special reports to be printed out. These detect overdrafts, control "holds" and "stop payments", average balances, and list data for accounts whose statement cycle falls on that day. One tape directs printing of statements, automatically calculating service charges. Another directs printing of a summery analyzing account activity. Other tapes generate the daily transaction register and special reports which may need management followup.

Management will also be able to obtain any special report it needs, including those which were previously not available because of the huge amount of statistical work they entailed.

The mechanical aspects of the program are spelled out, and the final part of the automation changeover involves the development of the organization and personnel to realize the benefits of the increased efficiency made possible by the system.

Our objective was a cost-wise "self-liquidating" organization developed from our own manpower reserves. We will keep our investment to a productive minimum by integrating the establishment and staffing of our EDP organization into an over-all schedule based on the availability date of our system.

Our three-man electronic research and development group became the cadre of the new Electronic Data Processing Division. We will service all 25 Fidelity offices from our main office in mid-city Philadelphia.

Five are chosen

An independent testing firm was called in to aid in the selection of our other EDP personnel. A group of 25 men within our own organization were given a battery of tests by this firm. Five who seemed best qualified and adaptable to the challenging new assignment were chosen.

It is interesting to note their backgrounds. There is a trust department supervisor, an auditor, a tax accountant, a tabulating supervisor, and a systems and methods man on the new team. In the new organization they are analyst-programmers. Their assignments are broader than either the analyst or the programmer. They have responsibility both for the development of routines for our needs and for the supervising and training of others as the organization grows. The group, as it stands today, comprises 10 people including three clerical or secretarial employes.

The internal educational program extended to the bank's over-all organization as well. For example, the system has an audit trial feature which could be used effectively by the auditing department. A representative of this department has been sent to programming school to acquire an understanding of the new procedures. He meets with our EDP division staff once a week to present and discuss proposals for programming audit trials. Through this type of cooperation we are working out what we believe to be the best application.

An expanding future

An educational program to acquaint all Fidelity employes with the significance of the change-over to automation is already underway. We want them to understand what it means to them personally. We feel it is important for employe morale that everyone knows about management's EDP policies and objectives, as well as the long-range benefits we anticipate.

Concluded on Page 51

An MBA Product Previews

Dry Prints From Negatives In 22 Seconds

Continuous-tone print rolls past the print-viewing window of the new Xerox picture printer at speeds of 20 feet a minute. Controls can modify contrast and exposure at operator's will.

WHAT could very well be termed the first step toward high-speed, dry printing of photographs from negatives was graphically demonstrated by Haloid Xerox, Inc. recently.

The company showed its new automatic picture printer (developed for the U.S. Air Force) which delivers positive, continuous tone pictures on white, unsensitized paper at the rate of 20 feet per minute, making a different 9 by 9-inch print every 2½ seconds.

The machine accepts conventional aerial negative films, and its immediate use is in speeding up aerial reconnaissance work.

The machine operates on the principles of xerography. In one continuous cycle, it exposes, prints and finishes dry, positive pictures from a 500-foot role of negative film up to 9 inches wide. A simple adjustment is possible to make positive pictures from positive film.

In describing the new development, Dr. John Dessauer, Haloid Xerox executive vice president, strongly emphasized that the new machine is merely a prototype and represents a scientific achievement rather than a commercial development.

"It is believed," he said, "that in the future there may be many commercial applications for just such an inexpensive, fast, dry picture printing process."

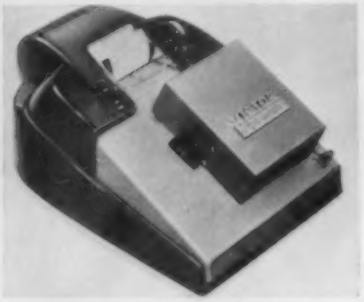
The present model, in use, will be able to deliver continuous prints as soon as aerial negatives are ready at the end of a flight. This is very important in an area where speed is so essential.

The unit measures 6 by 6 by 3-feet in size and can be operated without darkroom facilities in normal room light. It develops by a xerographic, dry-aerosol continuous-tone process and prints on unsensitized, plastic-coated paper. Circle No. 7-16.

MBA Showcase

New Products for Business Automation

Data Control System

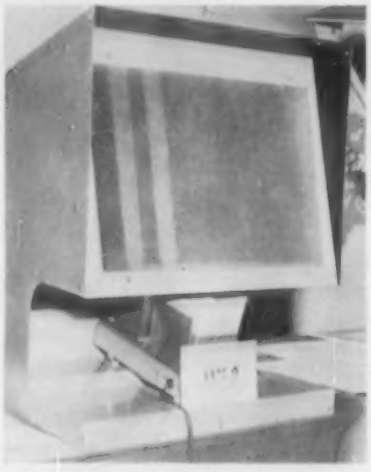


A monitor designed to verify wire-transmitted numerical data has been announced by the Victor Adding Machine Co. The Data Transmission Control System is said to provide an efficient means of pinpointing errors that occur in transmitting data over long lines. Basic components are Digit-Matic adding machines cable-connected at transmitting and receiving points. They accumulate the figures and print batch totals for comparison at the receiving point. Circle No. 7-1

Punched Forms Binders

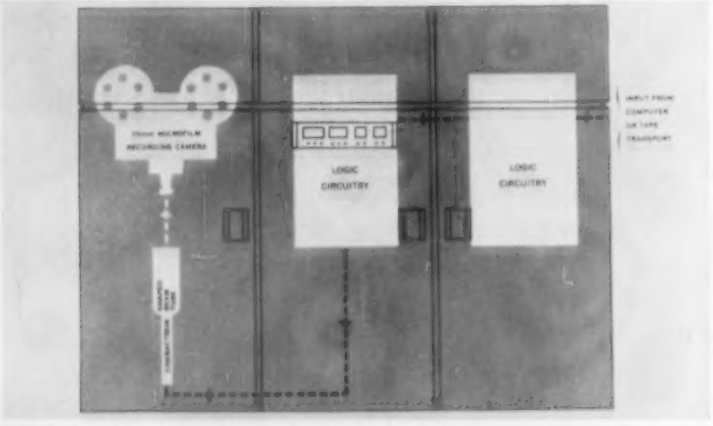
A new line of binders to house bursted or unbursted multiple punched forms for reports produced by tabulating departments from punched cards or tapes has been announced by National Blank Book Co. Black plastic covers with nylon posts which bend, or pressboard covers with metal posts are both available with the new "Clip It" mechanism. Also available is a post bar binder with a "Press-to-Lock" mechanism. Circle No. 7-13

Microfilm Projector



Three new microfilm projectors, ranging in price from $75 to $125, were recently introduced by Microdealers, Inc. The Draftsman models are designed as the missing link in the Filmsort system. These readers will utilize both positive and negative film with either aperture cards or conventional slides. All three models feature Bell & Howell projectors and will accommodate a D-Size Filmsort Aperture (Mil. Spec.) The cabinet model, 707C, has a 12 by 18-inch day-view screen. Circle No. 7-12.

High-speed Microfilm Printer



The S-C 4020 high-speed microfilm printer, capable of recording computer output data on microfilm at the rate of 15,000 characters per second, has been announced by Stromberg Carlson Division of General Dynamics.

Broad applications are foreseen in the fields of graph plotting, tabular printing, design engineering and computer monitoring. It differs from other units in the S-C 4000 Series in that it is compatible with a wide variety of data processing systems and is capable of either on-line or off-line operation at the discretion of the operator.

The unit combines the use of a Charactron-shaped beam tube and a 35mm. recording camera in addition to a logic circuitry.

Previous S-C printers were designed for on-line use with specific computer installations. There are special accessories available. One such unit is the F-60 Form Projector for use in commercial applications. A form may be superimposed on the recorded data, precluding the necessity of repeatedly programming the form into the computer. Circle No. 7-3

Tape Converter

The Dykor D101 converts data produced on magnetic tape by a computer to its corresponding form on a standard teletype paper tape. Although input and output data are in different code, both are identical in content except for certain editing and format control characters appearing on the output tape. First unit in use by Merrill, Lynch, Pierce, Fenner and Smith taking magnetic tape output of computer recording stock market transactions and translating this into teletype paper code for feeding directly to branch offices. Figures, letter shift, carriage return, line feed and other format control are inserted automatically under control of a plugboard. The D101 is basically a standard unit, but the plugboard can be modified and custom-designed to meet the requirements of the user. By Digitronics, Inc. Circle No. 7-10

Diazo Intermediate Paper

A transparentized vellum coated with a solution that produces a blueline image that is non-reproducible but can be used as a working master for selective re-drawing on a diazotype machine has been developed by the Frederick Post Co. The phantom blue images on the Post 206 PBT paper do not block actinic light, so that subsequent data, such as marginal information accompanying an original drawing or instructions not intended to be reproduced for general distribution, can be printed on the master. Circle No. 7-9

Add-Multiplying Machine

The Multisumma 22 is the latest high speed adding machine in the Olivetti line. It gives credit balances and also multiplies automatically with all calculations recorded on printed tape. The unit operates at 220 cycles per minute and has a 12-digit capacity with a 13-digit total. Double and triple cipher keys speed entries. Factors and results are printed out marked with appropriate symbol to control accuracy in checking. Other features include a special date printing service, non-add key for printing reference numbers, and a column indicator. Circle No. 7-14

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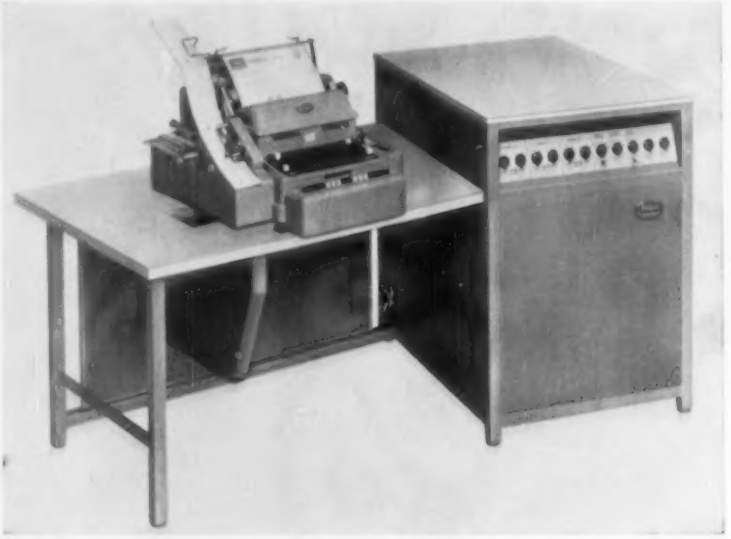
Tape Storage Units

A new and complete line of magnetic tape reel storage units has been designed by Tab Products Co. The line includes an open-front modular reel cabinet of shelfless construction with bottomless welded-in racks, a five shelf reel cabinet for primary tape storage (pictured here), a counter-high Storaway which holds up to 104 reels with accessibility from two sides, and two in-transit storage units, one a combination reel truck and storage unit and the other a portable reel rack with a multi-position handle. All of these units have individual features such as doors and in some cases locks. Circle No. 7-8

Short Run Master

A new, direct image offset master for short runs of 100 copies or less has been developed by the A. B. Dick. Co. The master is designed principally for systems work in which many masters are used, but relatively few copies are required from each master. Low in cost, it can be imaged with standard writing tools, including pen, pencil, typewriter or tabulator. Corrections are made by erasing. Available in either straight edge or pin bar punched in standard sizes. Circle No. 7-7

New Versatility Claimed for Model CTS Computyper



Friden's new Computyper is housed in modern desk and console.

A HOST of new features and innovations are claimed for the new Model CTS Computyper by Friden, Inc.

Included in the new model is an additional accumulator for more registers, greatly increased production speed through automatic selective elimination of tabulating stops, automatic starting and stopping of input reading to permit variable entries, and telephone switchboard convenience in changing applications through an 828-hole program panel or "patch board."

In addition, Friden states the new Computyper can be used with a wide variety of auxiliary input and output units. Various tape and card readers, including the new Selectadata can be used for supplementary input, as well as an auxiliary Friden adding machine.

At the same time, various punches can be used for auxiliary output, including the Friden auxiliary output adding machine and a receiver or "slave" Flexowriter.

The new unit is housed in a modern desk and console, providing what the company states is increased operator convenience.

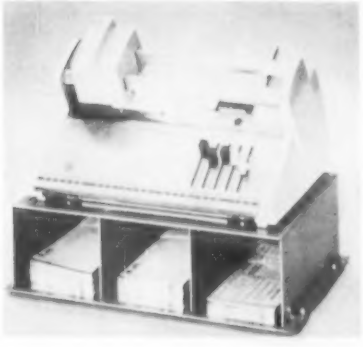
The Computyper is an automatic writing-computing machine which can be operated by punched paper tape, tabulating cards, or both, and while producing a document at a speed of 100 words per minute, can produce a by-product punched tape.

It can also be coupled to a key punch so that the tabulating cards can be automatically produced. Circle No. 7-5.

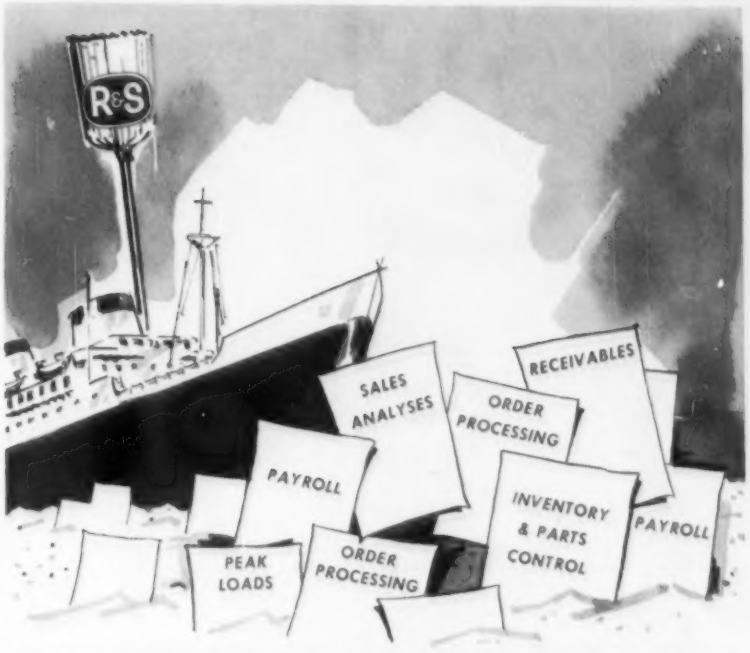
Tab Card Reader

A tab card reader that is said to read 80-column cards at speeds of 1200 columns per minute has been announced by Systematics, Inc. It is designed to provide alphanumeric input into an IBM 632 Electronic Typing Calculator and can be adapted to operate a variety of other accounting machines, adding machines and typewriters. Company states the reader uses a unique me-3chanical design for registering and transporting the card, and the programming unit provides flexibility in automatic input applications. Circle No. 7-11

Credit Card Imprinter



A credit card imprinter which makes it possible to imprint the amount of purchase on a sales slip at the same time as the names of the customer and member-merchant are recorded from embossed plates has been made available by Dashew Business Machines, Inc. The Datawriter is already in use by firms participating in the Bank of America credit card plan and other banking organizations. It is now being released to businesses such as oil firms, department stores, credit bureaus and others. Circle No. 7-2



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Open shelf filing is a "must" where space is at a premium for there are no space consuming drawers to be opened. Barkley open shelf file supplies make hundreds of files visible at one time; permit filing higher than eye level; permit using all the valuable floor space, and cost less to operate too. Ask us for complete information.

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Circle Reader Service Card No. 7-58

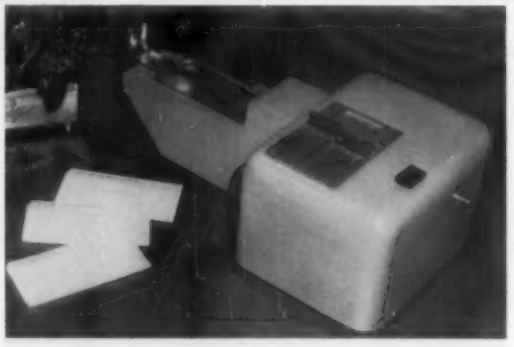
Photocopy Machine

The Golden Corvette, a new photocopy machine featuring "Flo-Matic Control" is now being shown by Cormac Photocopy Corp. The unit utilizes an electrical system to fill and drain the developer. This means a minimum of liquid handling, especially on the part of the secretary or operator. A button control fills or empties the tray when necessary. Circle No. 7-6

Portable Dictating Unit

Minnesota Mining and Manufacturing Co. has entered the magnetic dictating field with a four-pound portable unit and an office-sized unit. Both machines use "Scotch" brand magnetic dictation belts of video tape. Both machines also have retractable microphones and special push-button "index logs" to facilitate finding any particular point in a letter. The office machine offers three forms of playback. Circle No. 7-4

Punchwriter Prints and Punches Checks



A compact, electronic check-writing machine that simultaneously prepares bank money orders for input to tabulating equipment has just been announced by William L. Raub, Inc.

The unit, known as the Punchwriter, combines the conventional function of printing the amount on the face of the check in legible type and, at the same time, punching the amount in standard punched-card tabulating code.

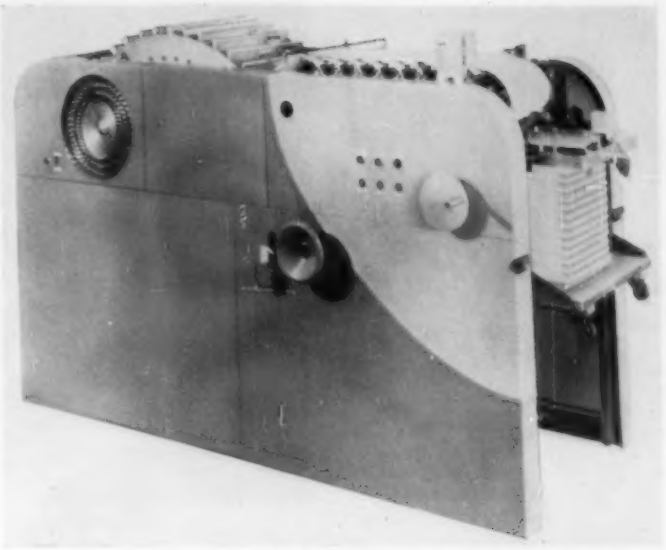
It can handle a single card or manifold, five-part form. Simple insertion into a tray and the depression of a motor bar completes the operation.

As an added protection, asterisks (*) are printed where there is no character in high order figures. The Punchwriter also has fixed print slugs which print "DOLS" and "CTS" to avoid any error in amount.

According to the manufacturer, the unit is designed to eliminate any delayed keypunching or marksensing activities. It can be recommended by banks to small companies for whom they are doing payroll reconciliation, if the companies themselves do not have punched card equipment. Circle No. 7-15.

An MBA Product Preview

Develop 50-Station Automatic Collator



The new "Rotomatic" collator has 50 bins arranged in a rotary drum, taking less floor space than side-by-side or groupings of stations. The entire unit is only 84 inches long and 30 inches wide.

THE new 50-station "Rotomatic" collator is offered by Thomas Collator Industries, Inc. as a single unit which can handle up to 50-sheet sets and down to two-sheet sets, either singly or in as many as two, three or more jobs at one time.

A push-button programmer can be pre-set to have stations pick up or skip as desired. By using the programmer, several separate collating jobs can be run through at the same time. This means all 50 stations can be used at all times, in contrast to smaller units which, when not operating at full station capacity, will have some stations remaining idle.

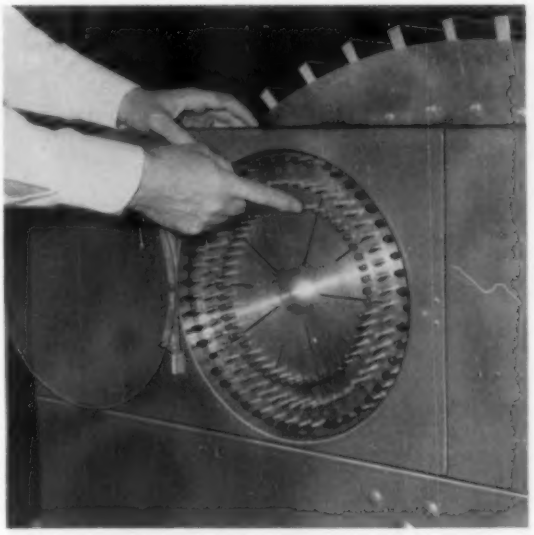
To speed up smaller jobs, it is possible to set the "Rotomatic" for a repeated pattern using as many of the stations as possible within the 50 limit.

The programmer has another feature in that it controls the offsetting of sets as they are stacked, enabling the different jobs, collated together, to be readily separated at the end of a run.

Depending upon the speed of operation desired, the machine will collate, count, stagger or stitch from 15,000 to 25,000 sheets per hour.

If more than one sheet goes by or a sheet is skipped, the machine stops instantly and a warning light indicates the type of error. A pointer shows where the miss or double occurred.

The 50 bins have been arranged in a rotary drum, taking less floor space than side-by-side or groupings of stations. The entire unit is only 84 inches in overall length and 30 inches wide, fitting into an area of 17½ square feet.



The push-button programmer can be pre-set to have stations pick up or skip as desired. It is possible to run several separate collating jobs at one time.

All controls are within arm's length, eliminating the need for an operator to travel from one end to the other to make adjustments. The unit is said to load in seven minutes (all 50 stations). It was designed by Luis Mestre, inventor of the Whittin Press. Circle No. 7-17.

New Univac 'Solid State' Computer

J. Presper Eckert, Remington Rand V.P., and Dr. Grace Hopper, in charge of Univac programming development, discuss console operation of the new Solid State system. Eckert was co-designer of the country's first large-scale computer, the ENIAC.

REMINGTON Rand has announced the Univac Solid State, the first "solid state" electronic computer to be made commercially available in the United States.

Deliveries begin this month, with the Kansas City Life Insurance Co. as one of the first companies to install the new system. Several of the solid state systems have been in operation in Europe since late last year.

The Univac Solid State consists of four units—a central processor, a card reader, a read-punch unit and a high-speed printer. The four units combined require only 275 square feet of floor space.

All units are capable of simultaneous operation, which, according to Remington Rand and computer engineers, adds a significant new dimension to the entire data processing function. Speed claims for additions and subtractions are 11,760 per second.

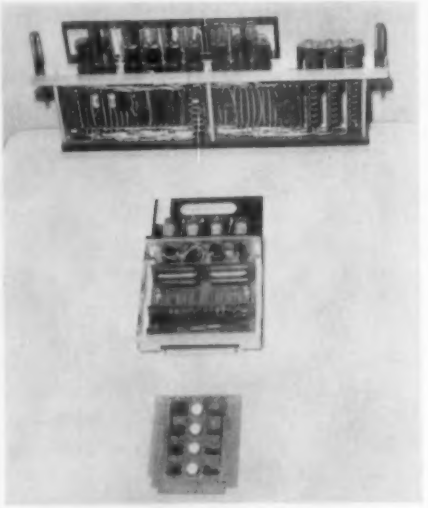
The high-speed card reader is capable of reading and verifying up to 450 cards per minute. The printer lists 600 lines a minute with 130 characters to a line. The magnetic drum storage is capable of storing 5,000 10-digit words. The computer requires no plugboard. Format, dual-printing, multiline printing, zero suppression, special characters (currency marks, plus or minus signs, punctuation, etc.) are controlled by the programming and stored on the magnetic drum.

Designed and developed under the direction of J. Presper Eckert, vice president and chief engineer of commercial products for the Univac division, the Solid State is a midget compared to the world's first electronic digital computer, the Eniac, also designed by Eckert.

Eniac weighed over 30 tons and occupied 1,500 square feet, compared with 3,500 pounds and 275 square feet for the Solid State. Despite this difference in size, the latter has 10 times the speed and 100 times the capacity of Eniac.

Announced monthly rental for the new computer is $6,950, with purchase price set at $347,500. Circle No. 7-18.

An MBA Product Preview



Dramatic reduction in Univac component size is shown here. Printed board in foreground is from the Solid State which uses Ferractor amplifiers developed after five years and $1 million in research.

NEWS

NOMA Told of Automation Challenge

The annual convention of the National Office Management Association, May 24-27, gave emphasis to the drastic changes occurring in the modern office as a result of the growth of business automation.

A challenge to NOMA members to become more responsible members of the management team was made by one of the featured speakers, J. J. Macdonell of Price Waterhouse & Co. in Montreal, Canada.

Mr. Macdonell cited several factors which must be overcome by any firm desiring to stay abreast of rapid changes in marketing and technology. He stated first, that the present organizational structure in the average business is too compartmentized. Second, he stressed the fact that communications are far less efficient than other management operations. Third, in too many cases the administrative processes are in the hands of untrained administrators. Finally, he emphasized that the rigid high cost of administrative services in most companies is placing ever-increasing pressure on top management to find new ways of reducing or restraining these expenses.

He advocated the training of professional administrative executives whose skills and responsibilities would extend to every department. According to Macdonell, office managers have an opportunity at the present time to qualify themselves in this direction. Otherwise, he said, their responsibilities will be limited more and more to routine office administration and personnel work.

Another provocative presentation was made by Edward Boettener, Jr., U.S. Department of Labor, concerning "Our Manpower Future Through 1965." Boettener stressed the need for developing highly trained office workers to take advantage of the automated equipment systems which are being installed rapidly.

He added a word of warning by predicting that irregular employment at lower wages appeared to be the prospect for the uneducated in the future. "We will have manpower, but will we have brain power?" he asked.

An exhibit of manufacturers' equipment was also held in connection with the convention in New Orleans. Attendance was not up to expectations for this 40th annual conference of NOMA.

Yoder Named President Of Controllers Institute

R. A. Yoder

Roger A. Yoder, vice president-finance, Detroit Steel Corp., Detroit, was elected president of the Controllers Institute of America, effective September 1.

Mr. Yoder was elected to succeed J. McCall Hughes, vice president and controller of Mutual of New York. Mr. Hughes moves to chairman of the board of the Institute. The elections took place at the May 21 meeting of the board of directors at the Institute's Western Conference.

Mr. Yoder has been a member of the organization since 1941 and has served as a director and regional vice president. He also served as vice chairman of the executive committee.

Merriman Elected SPA President

D. D. Merriman

David D. Merriman, controller of the McCord Corp., Detroit, was elected president of the Systems and Procedures Association for the coming year.

Keith DeLashmutt was named executive vice president at the same time. Mr. DeLashmutt is with R. R. Donneley & Sons Co. in Chicago.

Other officers are Roy Clark, Thomas J. Lipton Co., Inc., Hoboken, N.J., secretary; John P. Williamson, Toledo Edison Co., Toledo, Ohio, treasurer; Paul Jenkins, Olin Mathieson Chemical Corp., New York, vice president for Region 1; Myron Higbee, Burroughs Corp. Research Center, Paoli, Pa., vice president for Region 2; and Norman J. Ream, Lockheed Aircraft Co., Burbank, Calif., vice president for Region 3.

The new president was a founder and charter member of the Detroit SPA when it was organized in 1948. He was president of the group when it became the Detroit chapter.

Computer Speeds Orders for Purolator

The console operator can, at the flick of a finger, "demand" and obtain in seconds complete information on the stock status of thousands of filter units manufactured by Purolator.

An electronic computer system able to process customer orders in seconds—even to computing federal and state taxes where required—has been installed in the Rahway, N.J., headquarters of Purolator Products, Inc.

The computer system—an IBM 305 Ramac—processes order data for more than 4,000 different types of industrial and automotive filters, up-dates inventory for each filter unit, and readies all necessary shipping information, including the number of units to be packed per carton and the type of freight service to be used.

James D. Abeles, president of Purolator, states that the new data processing techniques will save about five days in delivery time for the customer and still provide the company with practically minute-by-minute control over accounting, inventory, and production.

With the system in operation, complete order information "on demand" is available in seconds. The processing is sequenced in logical order so that if any order being processed should delete stock on hand, the memory center signals the depletion, stores the order, and—when stock is available—processes the order withheld in sequence according to the date each order was received and withheld.

During processing, the original invoice, customer and file copies, bill of lading, packing list and shipping instructions are all typed automatically. The packing list contains all information required by production and warehouse personnel to fill the order.

A.T.&T. Mails Automated Dividends

American Telephone and Telegraph Co., at the end of May, mailed out certificates representing 142,000,000 shares of stock to 1,625,000 shareholders.

The mass mailing began at 12:01 A.M. on May 29 and included 2,283 bags of envelopes. The stock certificates were prepared and made ready for mailing in five weeks using a completely new automated system described in the May issue of MANAGEMENT AND BUSINESS AUTOMATION.

Mailing cost to the company was $70,000 and another $70,000 went for covering insurance.

A Correction

On page 29 of the May issue of MANAGEMENT and BUSINESS AUTOMATION, the NCR adding machine and punched paper tape recorder was incorrectly referred to as an Add Punch.

The name "Add-Punch" is a registered trade name of Friden, Inc. which also manufacturers the "Flexowriter" mentioned in the same article.

1,700 Attend Annual NMAA Conference

Some 1,700 members and guests attended the annual conference of the National Machine Accountants Ass'n held in St. Louis on June 24-26. The three day program featured a variety of seminars covering punched cards, electronics and general education.

Highlight of the seminar program was a video-tape telecast of the computer operations at Monsanto Chemical Co., Aeronautical Chart and Information Center, and the Michigan Blue Cross.

Keynoter speaker for the conference was General Leslie R. Groves, U.S.A. (Ret.), Vice President, Remington Rand Div., Sperry Rand Corp. Groves, war-time head of the Manhattan Atomic Bomb Project, pointed out to the machine accountants the danger of "too much 'doing' and not enough managing."

The NMAA directors elected D. B. Paquin of Chicago as president and L. W. Montgomery of Shreveport, La. as executive vice president.

It was announced that Detroit has been selected as the site of the 1963 conference.

M. H. Gibson Elected NABAC President

Malcolm H. Gibson, vice president and cashier of the Citizens Bank of Sheboygan, Wis., was named president of the National Association of Bank Auditors and Comptrollers for 1959-60 term.

Other officers include Arthur C. Suhrbier, assistant auditor, Continental Illinois National Bank and Trust Co., Chicago, as first vice president; Winslow E. Pike, vice president and controller, First National Bank of Atlanta, Ga., second vice president; and John C. Kimmel, vice president and comptroller, Mercantile National Bank of Chicago, treasurer.

As of July 1, the group has officially changed its name to "NABAC, The Association for Bank Audit, control and Operation."

Change in IBM Lineup

A major reorganization of the International Business Machines Corp. was recently announced by President Thomas J. Watson, Jr.

Under the new set-up, the Data Processing division, which handles IBM punched card and electronic data processing systems, has been separated into a marketing division and two product development and manufacturing divisions — one for large-scale data processing systems, the other for smaller systems.

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next month . . .

Electronic Communications in Business

The editors of MANAGEMENT and BUSINESS AUTOMATION recognize the fact that rapid communications are essential to any successful business automation and data processing application. In fact, lack of quick, reliable communication often is the weakest link in these systems. Therefore, the entire August issue of MBA will be devoted to this one vital subject.

Specific methods of communication to be explored in depth include:

Direct wire
Closed-circuit TV
Micro-wave
2-way radio
Dictating systems
Intercoms
Paging systems
Pneumatic tubes
Facsimile

Every executive charged with business automation responsibility will find the August issue of MANAGEMENT and BUSINESS AUTOMATION deeply rewarding. Make a point to read it carefully.

Keep up-to-date with the fascinating, rapidly unfolding developments in business automation by making . . .

MANAGEMENT
and
BUSINESS AUTOMATION

a monthly reading habit.

MBA Reviews

Ideas for Management: Papers and Case Histories Presented at the 11th International Systems Meeting

Published by the Systems and Procedures Association, 4463 Penobscot Bldg., Detroit, Mich. $16.

The 1959 edition of this annual publication carries the proceedings of the 11th ISM with speeches presented in full context. Seminar sessions are also presented in detail, and of particular interest to management and systems personnel are the recorded comments and observations by educators and systems executives at the Educators' Round Table session on systems education and training.

This issue contains, for the first time, a complete listing of courses currently offered by American universities and colleges in systems work, electronic data process, operations research and related management sciences.

Proceedings of the Fifth Annual Computer Applications Symposium October 29-30, 1958.

Sponsored by the Armour Research Foundation of Illinois Institute of Technology, Chicago, Ill. Price $3.00

The sessions of the Fifth Annual Computer Symposium stressed the use of the new computers and accessories, new techniques of computer programming, the organization and operation of computer installations, and new applications. The first day of the two day session was devoted to business and management applications, the second to engineering and scientific uses.

The emphasis of both sessions was on the user, and on the various ways which he can benefit from knowledge of new developments, techniques, and areas of application. The 151 page paper bound volume, includes chapters on an Integrated Data Processing System with Remote Imput and Output, by R. D. Whisler, S. C. Johnson and Son; The Role of Character-Recognition Devices in Data Processing Systems, by R. L. Harrell, Director of Electronic Processing for the Reader's Digest Association; and Computer Applications in the Numerical Control of Machine Tools, by R. B. Clegg, Servo Machine Tool Division, Kearney and Tracker Corp.

Included in the publication are the pertinent discussions which followed the scheduled talks in addition to the panel discussion which climaxed each day session.

On Request

The following booklets, catalogs and brochures are considered of interest to readers of MANAGEMENT and BUSINESS AUTOMATION. Copies can be obtained by using the convenient Reader Service Card and circling the corresponding key numbers.

AUTOGRAPHIC BUSINESS FORMS, INC.—A booklet explaining "The Check of Tomorrow" using magnetic ink character recognition is now available. It describes, in simple terms, the American Bankers Association program for magnetic ink character recognition leading to automatic check handling. Circle No. 7-20

ROYAL MCBEE CORP.—Brochure No. S-463, "New Concepts in Practical Automation and Electronic Computers," explains the Automatic Key Sort system, the LGP-30 electronic computer, and other products by the company. Circle No. 7-21

DIGITRONICS CORP. — Bulletin TPG39 is a six-page brochure describing the company's Dykor Auxiliary Tape Processing equipment, said to offer a computer user the solution to the problem of off-line testing, editing, copying, interrogation and translating of magnetic tape files. Price ranges are included. Circle No. 7-22

STROMBERG TIME CORP. — The Stromberg Transacter system for gathering data in remote areas and communicating it instantaneously to a centrally located data processing center is described in a new brochure. Circle No. 7-24

CLARY CORP. — Technical details of the Clary Model 1941 form printer are offered in a new 10-page brochure. Applications for this unit include automatic check-out data, logging instrument data, recording quality control reports, and recording inspection records. Brochure No. S-112. Circle No. 7-25

WRIGHT LINE, INC.—Catalog 21 now available covers new line of tape handling and storage equipment as well as other data processing storage and transport units. Circle No. 7-31

REMINGTON RAND DIVISION—The large-scale Univac 1105 data processing system is described in this 55-page manual. Written for top management personnel, educators and administrators, the manual describes and explains in detail the various components and features of this system now being used by the Bureau of the Census. Circle No. 7-32

C. L. BARKLEY & CO.—The increase in size and quantity of records and reports made available by automation in the office is creating a new need for filing space which offers economy of space and housing. A non-technical folder is now available from this company listing the relative advantages of the open shelf filing system, one answer to the problem. The pamphlet points out both advantages and disadvantages of the system. Circle No. 7-34

CUMMINS-CHICAGO CORP.—Company has revised its booklet, "Four Ways to Be Sure It Can't Happen Here!" covering fraud prevention and how bank embezzlement occurs. Circle No. 7-33

MBA's Calendar

July 29-31—Midwest Office Systems Workshop and Exhibit, The Armory, Waukegan, Ill. Sponsored by Midwest Equipment Systems Workshop Association. Managed by Carney Associates, 28 E. Jackson Blvd., Chicago 4, Ill.

August 18-21—Western Electronic Show and Convention, San Francisco. Contact Wescon Headquarters, 1435 S. La Cienega Blvd., Los Angeles 35, Calif.

August 24-28—Electronic Data Processing Workshop Seminar sponsored by Americah Management Association. Limited to firms which have EDP installations or are planning installation. Write A.M.A., 1515 Broadway, New York 36, N.Y.

September 14-16 — Electronic Data Processing Workshop sponsored by the American Management Association in Chicago. For details write A.M.A., 1515 Broadway, New York 36, N.Y.

September 21-23 — 35th annual National Association of Bank Auditors and Comptrollers convention, Boston, Mass. Statler-Hilton Hotel. Headquarters, 38 S. Dearborn, Chicago 3, Ill.

September 22-25 — First national exhibition by Office Equipment Manufacturers Institute. National Guard Armory, Washington, D.C. Contact Rudolph Lang, 777 14th St., N.W., Washington 5, D.C.

October 4-8—National Business Forms Associates 14th Annual Convention at Chalfonte Haddon Hall Hotel, Atlantic City, N.J. Information from F. J. Ring, secretary, 207 E. Broward Blvd., Ft. Lauderdale, Fla.

October 12-14—International Systems Meeting of the Systems and Procedures Association of America, Royal York Hotel, Toronto, Canada.

October 18-23 — National Business Show, New York Coliseum, New York City.

October 28-29—Sixth annual Computer Applications Symposium sponsored by Armour Research Foundation of Illinois Institute of Technology at the Morrison Hotel, Chicago. Contact M. J. Jans, conference secretary, Armour Research Foundation, 10 W. 35th St., Chicago 16, Ill.

November 4-6 — Annual Industrial Engineering and Management Clinic, Conrad Hilton Hotel, Chicago.

November 16-20—Fifth International Automation Congress and Exposition, New York Trade Show Building, New York City. Contact Richard Rimbach, managing director, 845 Ridge Ave., Pittsburgh 12, Pa.

December 1-2—1959 Eastern Joint Computer Conference, sponsored by the AIEE, ACM, and IRE. Statler Hilton Hotel, Boston, Mass. F. E. Heart, Lincoln Laboratory, Lexington, Mass., is chairman.

Fidelity's Move

Continued from Page 38

Qualified personnel will be motivated and encouraged to be tested for the new jobs and high skills that our system holds for them. Above all, we are anxious that all employes take pride in our bank's progressiveness, and that this pride be reflected in their customer relations and quality of service.

This entire program underscores our prime objective—preparation for an expanding future. The concept behind our painstaking planning has been ever-improving service to our customers. We look forward to the high level of efficiency in operations that the system should bring so that Fidelity can expand the scope of its varied activities to better meet individual, family and business banking requirements.

We also look to our system to make possible this anticipated growth while holding costs of our services to moderate levels. EDP should help us in our effort to maintain reasonable service charges.

We are geared for an expanding future with EDP, and automated banking promises to make possible a significant contribution as a stabilizing factor in a critical area of our economic life.

Holders clipped to tote boxes on conveyor belt

Tabulating card holders in shelves on storage walls

Card holders stacked 2-high on shelves

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ADAPTABLE TO FIT ANY SYSTEM

Users report fewer mistakes, better control and speedier handling of all types of merchandise. Easily installed on any type shelves, bins, boxes, containers.

- inventory control
- purchasing records
- inventory location
- billing card storage
- hundreds more uses

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For More Information Circle Reader Service Card No. 7-60

EDITORIAL

It's Management's Move

When we first raised our editorial voice in warning concerning labor's preparation for an onslaught against the American business offices (See MANAGEMENT and BUSINESS AUTOMATION, Oct. '58 and Jan. '59) a number of our critics accused us of creating an army of straw men. We hasten to report to our critics that the straw men have become very much alive and active.

In Chicago, Local 710 of the Teamsters, headed by John T. (Sandy) O'Brien, a member of Hoffa's Fifth Amendment hierarchy, has organized over 3,000 trucking company white collar workers. In New York, Local 832, the largest purely white collar local in the Teamsters International, has about completed organizing the city's 30,000 Civil Service white collar workers. And, in Washington, D.C., the AFL-CIO Industrial Union Department is establishing an educational institute to prepare organizers for the job of recruiting white collar workers. The institute will provide member unions with pamphlets and other research material to use in campaigns to enroll professional and technical people.

Labor has also stepped up its propaganda warfare. A recent report in the New York Trade Union Courier states: "It is inevitable that automation will lead to degrading and debasing the white collar job." The same report quotes an anonymous automation expert as saying: "Computers in an office will function like bulldozers in the construction industry." The Dayton, Ohio Labor Union Weekly reports that the rate of growth of office employes has tapered off significantly, and, in the foreseeable future . . . "will stop completely."

According to the latest labor estimates, there are 1½ million white collar workers who carry union cards. Some 14 million still remain outside the union fold. It seems incredible to us that management will abandon this group into the lap of labor without even so much as a struggle. And yet, there is no sign to the contrary. As the many associations gather for their annual conventions, we find the programs void of any mention of the labor crisis. This is the situation at what appears to us to be the time when all professional groups should be marshalling their forces for a vigorous counter-attack against the phony claims of the union spokesman.

For the moment, except for a few lone but loud voices such as ours, labor is doing all the talking . . .and backing it up with action. The white collar worker is listening and restless. There is a desperate need for the strong, collective leadership of management if we are to avert the tragedy of unionized offices. We trust that such leadership will not be long in coming.

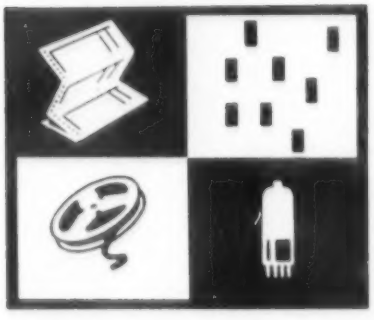
MOTOROLA'S BUSINESS AUTOMATION* BUYING TEAM

* Basically, it is the transfer of repetitive clerical jobs—now performed by people—to mechanical, automatic, electro-mechanical, or electronic methods.

At Motorola, these executives make the vital decisions pertaining to business automation, data processing, systems and procedures.

Similar teams make up the business automation market from every major company, institution and government agency.

One magazine is edited just for them... reaches all the important buying influences... and no one else—



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You can process more data per dollar in a working day, on small volume applications or large
3
EXPANDABILITY
You can increase Honeywell 800 capacity indefinitely in small, economical stages
4
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You can cut costs of maintaining accuracy with a new kind of automatic error correction
5
VERSATILITY
You can do both business data processing and scientific computation — simultaneously
6
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You can simplify problem preparation with Honeywell's automatic programming aids and library of routines
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Advanced design of the highest order. Continuing service of the highest quality. This is what you get when you do business with the Honeywell 800 — and Honeywell.

If your company is ready to capitalize on the benefits of transistorized data processing now (and for years to come), your technical executives and specialists should know the Honeywell story.

For full details and specifications of Honeywell 800, write Minneapolis-Honeywell, Datamatic Division, Dept. I-4, Newton Highlands 61, Massachusetts.

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For More Information Circle Reader Service Card No. 7-62